

ORIGINAL PAPERS OF
RICHARD BRIGHT
ON RENAL DISEASE



Rich Bright

OXFORD MEDICAL PUBLICATIONS

ORIGINAL PAPERS OF
RICHARD BRIGHT
ON RENAL DISEASE

EDITED BY

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FOREWORD

RICHARD BRIGHT's publications on renal disease consist of four articles all long out of print.

In 1827 appeared Volume I of his *Reports of Medical Cases Selected with a View of Illustrating the Symptoms and Cure of Diseases by a Reference to Morbid Anatomy*. The first 88 pages deal with diseases of the kidney with clinical and post-mortem notes of twenty-three cases and five beautiful hand-coloured plates. This, the most famous of Bright's papers, has become a landmark in the history of medicine.

In 1833 Bright delivered the Gulstonian Lectures, which were published in the *London Medical Gazette* (vol. xii), on 'The Functions of the Abdomen, and some Diagnostic Marks of its Disease'. The latter part of the second Lecture is devoted to renal disease and the changes in the urine by which it may be recognized.

Then followed two papers in the first volume of the *Guy's Hospital Reports* (1836)—'Cases and Observations Illustrative of Renal Disease Accompanied with the Secretion of Albuminous Urine', and 'Tabular View of the Morbid Appearances Occurring in One Hundred Cases in Connexion with Albuminous Urine'. The former contains an account of the mode of onset and clinical course of acute nephritis which has probably never been surpassed.

These four articles are reprinted in the present volume in order to render them more easily accessible to those unable to consult the originals.

In an Appendix reference is made to recent histological and radiological observations on the kidneys from three cases described by Dr. Bright which are still preserved in the Gordon Museum at Guy's Hospital. No account is given of Bright's life or work in other fields of medicine, as both have been ably

dealt with in an excellent survey by Sir William Hale-White in the *Guy's Hospital Reports*, 1921, vol. lxxi.

I am greatly indebted to the publisher and printer for their unfailing courtesy and efficiency.

A. ARNOLD OSMAN.

GUY'S HOSPITAL,
December 1936.

CONTENTS

REPORTS OF MEDICAL CASES SELECTED WITH A VIEW OF ILLUSTRATING THE SYMPTOMS AND CURE OF DISEASES BY A REFERENCE TO MORBID ANATOMY. London, 1827.

Cases Illustrative of Some of the Appearances Observable on the Examination of Diseases Terminating in Dropsical Effusion 1

CASES AND OBSERVATIONS, ILLUSTRATIVE OF RENAL DISEASE ACCOMPANIED WITH THE SECRETION OF ALBUMINOUS URINE.

Guy's Hospital Reports, vol. i, 1836 93

TABULAR VIEW OF THE MORBID APPEARANCES IN 100 CASES CONNECTED WITH ALBUMINOUS URINE.

Guy's Hospital Reports, vol. i, 1836 132

GULSTONIAN LECTURE No. II—ON THE FUNCTIONS OF THE ABDOMEN AND SOME OF THE DIAGNOSTIC MARKS OF ITS DISEASE.

London Medical Gazette, vol. xii, 1833 153

APPENDIX. HISTOLOGICAL SECTIONS FROM THE KIDNEYS OF THREE CASES OF 'BRIGHT'S DISEASE' ORIGINALLY DESCRIBED BY DR. BRIGHT. By A. Arnold Osman and reprinted with emendations from 'Studies in Bright's Disease, No. VII', *Guy's Hospital Reports*, vol. lxxxiii, 1933

167

REPORTS
OF
MEDICAL CASES,
SELECTED
WITH A VIEW OF ILLUSTRATING
THE SYMPTOMS AND CURE OF DISEASES
BY A REFERENCE TO
MORBID ANATOMY.

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GUY'S HOSPITAL.

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1827.

PREFACE

THE volume which I now offer to the Profession may be considered as the commencement of a work to be continued at irregular periods, receiving additions upon the same plan, more or less frequently, according to the various circumstances which must necessarily influence such an undertaking. It is my wish, in thus recording a number of cases, to render the labours of a large Hospital more permanently useful, by bringing together such facts as seem to throw light upon each other; and it is more particularly my wish to preserve and explain by faithful Engravings the recent appearances of those morbid changes of structure which have been connected with the symptoms or have influenced the treatment of the disease. Fortunately, I have not in the present day to explain the utility of Hospital Reports; nor am I now called upon to speak of the importance of that information which our profession derives from the study of Morbid Anatomy. To connect accurate and faithful observation after death with symptoms displayed during life, must be in some degree to forward the objects of our noble art: and the more extensive the observation, and the more close the connexion which can be traced, the more likely we are to discover the real analogy and dependence which exists, both between functional and organic disease, and between these, and the external symptoms which are alone submitted to our investigation during life.

Amongst the observations contained in this volume there are some of which I must bear the responsibility alone. Such are the statements and conjectures regarding the dependence of a peculiar class of Dropsies on disease and irritation of the Kidneys; such are some observations on peculiar changes in the structure of the liver; in the investigation of which, however, as in many other cases, I have been kindly assisted by my friend DR. BOSTOCK; and such are the hints thrown out on the influence of the peculiar state of the mesenteric absorbents on the symptoms

of Phthisis. There are other subjects, on the contrary, where I write with greater confidence, because borne out by the corresponding testimony of my contemporaries. Such are the observations on different diseased conditions of the Lungs, many of which, if not all, have fallen under the notice of the diligent pathologists of France; and such are more particularly the observations on the diseased condition of the Mucous Membrane of the Intestines during Fever, a fact long known in particular cases, but never suspected to be so general till brought into view by the French physicians, and which has lately been illustrated in this country with great beauty by the pens of my able and assiduous friends DR. CHAMBERS and DR. HEWETT.

It will form no part of my plan in future volumes, any more than it has done in this, to lay before my readers a succession of striking novelties. Utility is my first object; and the work which I now commence will not, in theory at least, be thoroughly completed, until every disease which influences the natural structure, or originates in its derangements, has been connected with the corresponding organic lesion. Extensive as this undertaking may appear, I do not despair of its completion, to the utmost that the present state of our knowledge will admit. The few months which have been seriously engaged in the task have enabled me not only to bring together the present volume, but to make large preparations for a second; and at all events I have the satisfaction of feeling that each volume, whether it finally form a part of an extensive work on Morbid Anatomy or not, will in the mean time be complete within itself, as a volume of Hospital Reports.

The execution of the Plates I can safely leave without one word of praise; and for the accuracy with which they represent the objects they are intended to illustrate, I cheerfully make myself responsible. The drawing and the engraving were executed under my own immediate superintendence; and in every case, except one, from the recent subject. I have carefully avoided having separate organs represented in the same plate, in order that if any one should hereafter wish to arrange them systematically, unconnected with the cases to which they be-

long, no difficulty might be experienced; and I trust that the fulness of the index will remove in some degree the inconvenience which necessarily arises, in the employment of a volume of Reports as a book of reference.

It is pleasing, and yet no easy task, to acknowledge the kindness of those many friends who in various ways have assisted me in this undertaking. I may truly say that I have met with the most cheerful compliance in all my wishes from every one connected with our establishment; but in a more particular manner I must confess my obligations to my immediate colleagues DR. CHOLMELEY and DR. BACK; not because they have been more willing to assist me than others, but because without their kind and ready permission I must have been deprived of many of the valuable facts and illustrations which have been largely drawn from cases under their care.

14 BLOOMSBURY SQUARE,
August 10th, 1827.

CONTENTS OF REPORT OF MEDICAL CASES

PREFACE	xi
CASES ILLUSTRATIVE OF SOME OF THE APPEARANCES OBSERVABLE ON THE EXAMINATION OF DISEASES TERMINATING IN DROPSICAL EFFUSION,—AND FIRST OF THE KIDNEY	1
CASE I. Anasarca with coagulable urine—Kidneys granulated— Pericardium inflamed. (Plate I)	5
Observations	9
CASE II. Anasarca and ascites with coagulable urine—Kidneys granulated	10
Observations	12
CASE III. Anasarca with coagulable urine—Lungs tuberculated— Kidneys diseased. (Plate II)	12
Observations	14
CASE IV. Anasarca with coagulable urine and hæmaturia— Kidneys in remarkable state of disease	14
CASE V. Anasarca—Urine coagulating into a gelatinous substance —Kidneys diseased—Peritoneum inflamed	17
Observations	19
CASE VI. Anasarca recurring frequently—Recent obstruction in the hepatic vessels—Kidneys granulated	19
CASE VII. Frequent anasarca—Urine coagulable—Kidneys hard and granulated. (Plate III).	21
CASE VIII. Anasarca—Coagulable urine—Enlarged heart—Hard and granulated kidneys	22
Observations	24
CASE IX. Anasarca and hydrothorax—Urine turbid and coagulable by heat—Kidneys granulated	24
CASE X. Anasarca and ascites—Urine moderately coagulable— Bronchi vascular—Kidneys granulated and hard.	25
Observations	27
CASE XI. Anasarca—Kidneys diseased. (Plate IV)	27
Observations	29

CASE XII. Anasarca—Dingy urine—Coagulable—Kidneys diseased	29
Observations	30
CASE XIII. Anasarca—Coagulable urine—Apoplexy—Kidneys slightly diseased—Blood effused into the ventricles	31
Observations	33
CASE XIV. Anasarca—Haematuria—Coagulable urine—Kidneys gorged with blood. (Plate V)	34
Observations	37
CASE XV. Anasarca—Very coagulable urine—Much relieved	38
Observations	41
Case continued	64
Case concluded	67
CASE XVI. Anasarca with coagulable urine—Cured	44
CASE XVII. Anasarca—Great secretion of urine, coagulable by heat—Cured	45
Observations	47
CASE XVIII. Anasarca with coagulable urine—Cured	48
Observations	52
CASE XIX. Anasarca with coagulable urine—Cured	53
Observations	55
CASE XX. Anasarca with coagulable urine—Cured	55
CASE XXI. Anasarca with coagulable urine—Much relieved	57
Observations	59
CASE XXII. Rheumatism—Disorganized liver—Adhesion of pericardium—Granulated kidneys—Coagulable urine	59
CASE XXIII. Anasarca—Coagulable urine—Kidneys granulated	62
Observations	64
GENERAL REMARKS ON THE FOREGOING CASES	67
OBSERVATIONS ON THE TREATMENT	71
OBSERVATIONS ON THE CHEMICAL PROPERTIES OF THE URINE IN THE FOREGOING CASES. By J. Bostock, M.D.	76
CASE XXIV. Anasarca—Coagulable urine—Kidneys diseased, Dr. Hodgkin's Case of	89
Observations	91

CASES ILLUSTRATIVE OF SOME OF THE APPEARANCES OBSERVABLE ON THE EXAMINATION OF DISEASES TERMINATING IN DROPSICAL EFFUSION

THE morbid appearances which present themselves on the examination of those who have died with dropsical effusion, either into the large cavities of the body or into the cellular membrane, are exceedingly various: and it often becomes a matter of doubt how far these organic changes are to be regarded as originally causing or subsequently aiding the production of the effusion, and how far they are to be considered merely as the consequence either of the effusion or of some more general unhealthy state of the system. If it were possible to arrive at a perfect solution of these questions, we might hope to obtain the highest reward which can repay our labours,—an increased knowledge of the nature of the disease, and improvement in the means of its treatment.

One great cause of dropsical effusion appears to be obstructed circulation; and whatever either generally or locally prevents the return of the blood through the venous system, gives rise to effusions of serum more or less extensive. Thus, diseases of the heart which delay the passage of the blood in the venous system, give rise to general effusion, both into the cavities and into the cellular tissue. Obstructions to the circulation through the liver, by causing a delay in the passage of the blood through the veins, connected with the vena portae, give rise to ascites. The pressure of tumours within the abdomen preventing the free passage of blood through the vena cava, gives rise to dropsical effusion into the cellular tissue of the lower extremities: and not unfrequently, the obliteration of particular veins from accidental pressure is the source of the most obstinate anasarca accumulation.

These great and tangible causes of hydropic swellings betray themselves obviously after death, and are often easily detected during life;—yet they include so great a variety of diseases,

that they still present a very wide field for the observation of the Pathologist. The different diseases of the heart and of the lungs on which dropsy depends, and the various changes to which the liver is subject rendering it a cause of impediment to the circulation, are still open to much investigation. In fatal cases of dropsy we likewise find the peritoneum greatly diseased in various ways; frequently covered with an adventitious membrane more or less opaque, and capable of being stripped from the peritoneum, which is then left with its natural shining and glossy appearance. At other times the peritoneum is itself altered in structure, or is affected with tubercular or other diseases, presenting an accumulation of morbid growth.

There are other appearances to which I think too little attention has hitherto been paid. They are those evidences of organic change which occasionally present themselves in the structure of the KIDNEY; and which, whether they are to be considered as the cause of the dropsical effusion or as the consequence of some other disease, cannot be unimportant. Where those conditions of the kidney to which I allude have occurred, I have often found the dropsy connected with the secretion of albuminous urine, more or less coagulable on the application of heat. I have in general found that the liver has not in these cases betrayed any considerable marks of disease, either during life or on examination after death, though occasionally incipient disorganization of a peculiar kind has been traced in that organ. On the other hand, I have found that where the dropsy has depended on organic change in the liver, even in the most aggravated state of such change no diseased structure has generally been discovered in the kidneys, and the urine has not coagulated by heat. I have never yet examined the body of a patient dying with dropsy attended with coagulable urine, in whom some obvious derangement was not discovered in the kidneys.

Whether the morbid structure by which my attention was first directed to this subject, is to be considered as having in its incipient state given rise to an alteration in the secreting power, or whether the organic change be the consequence of a long continued morbid action, may admit of doubt: the more probable

solution appears to be, that the altered action of the kidney is the result of the various hurtful causes influencing it through the medium of the stomach and the skin, thus deranging the healthy balance of the circulation, or producing a decidedly inflammatory state of the kidney itself:—that when this continues long, the structure of the kidney becomes permanently changed, either in accordance with, and in furtherance of, that morbid action; or by a deposit which is the consequence of the morbid action, but has no share in that arrangement of the vessels on which the morbid action depends.

The observations which I have made respecting the condition of the urine in dropsy, are in a great degree in accordance with what has been laid down by Dr. Blackall in his most valuable treatise.

Where anasarca has come on from exposure to cold, or from some accidental excess, I have in general found the urine to be coagulable by heat. The coagulation is in different degrees: it likewise differs somewhat in its character: most commonly when the urine has been exposed to the heat of a candle in a spoon, before it rises quite to the boiling point it becomes clouded, sometimes simply opalescent, at other times almost milky, beginning at the edges of the spoon and quickly meeting in the middle. In a short time the coagulating particles break up into a flocculent or a curdled form, and the quantity of this flocculent matter varies from a quantity scarcely perceptible floating in the fluid, to so much as converts the whole into the appearance of curdled milk. Sometimes it rises to the surface in the form of a fine scum, which still remains after the boiled fluid has completely cooled. There is another form of coagulable urine, which in my experience has been much more rare; when the urine on being exposed to heat assumes a gelatinous appearance, as if a certain quantity of isinglass had been dissolved in water. I have indeed met with this in one or two cases only.

During some part of the progress of these cases of anasarca, I have in almost all instances found a great tendency to throw off the red particles of the blood by the kidneys, betrayed by various degrees of haematuria from the simple dingy colour of

the urine, which is easily recognized; or the slight brown deposit;—to the completely bloody urine, when the whole appears to be little but blood, and when not unfrequently a thick ropy deposit is found at the bottom of the vessel.

Besides these cases of sudden anasarca swelling being generally accompanied by coagulable urine, I have found another and apparently a very opposite state of the system prone to a secretion of the same character; namely, in persons who have been long the subjects of anasarca recurring again and again, worn out and cachectic in their whole frame and appearance, and usually persons addicted to an irregular life and to the use of spirituous liquors. In these cases the albuminous matter has coagulated, in the more ordinary way, in flakes and little curdled clots; but instead of rendering the whole milky, the flocculi often incline to a brown colour, looking like the finest particles of bran more or less thickly disseminated throughout the heated urine. Occasionally in these cases the urine has been much loaded with saline ingredients becoming turbid by standing, but rendered quite clear by the application of a much lower degree of heat, than is necessary to coagulate the albumen.

In all the cases in which I have observed the albuminous urine, it has appeared to me that the kidney has itself acted a more important part, and has been more deranged both functionally and organically than has generally been imagined. In the latter class of cases I have always found the kidney decidedly disorganized. In the former, when very recent, I have found the kidney gorged with blood. And in mixed cases, where the attack was recent, although apparently the foundation has been laid for it in a course of intemperance, I have found the kidney likewise disorganized.

It is now nearly twelve years since I first observed the altered structure of the kidney in a patient who had died dropsical; and I have still the slight drawing which I then made. It was not however till within the last two years that I had an opportunity of connecting these appearances with any particular symptoms, and since that time I have added several observations. I shall now detail a few Cases, beginning with the two first, in which

I had an opportunity of connecting the fact of the coagulation of the urine with the disorganized state of the kidneys.

CASE I

JOHN KING, æt. 34, was admitted October 12, 1825, into the Clinical ward of Guy's Hospital, under my care. He had been a sailor till within the last four years, and was accustomed to take considerable quantities of spirits;—but he said he had since avoided taking them, and had been engaged in turning a cutler's wheel. He was pale, and of an unhealthy appearance.

About three weeks before admission he was seized with pain in his loins, knees, and ankles;—his legs soon became much swollen, and his hands and face occasionally oedematous. When admitted, the abdomen was painful on pressure. Pulse 78, rather hard; tongue natural, but pale. Bowels somewhat purged; dejections rather light coloured. Urine scanty, about one pint in twenty-four hours. Appetite good.

R. Hydrarg. Oxydi cinerei gr. j,
Pilul. Scillae compos. gr. xij,
Opii purificat. gr. j;

Contunde et in Pilulas iij divide hora somni quotidie sumendas.

The reports of the five following days represent him as rather improving with regard to the quantity of urine. The oedema little reduced; and he lay easiest when raised in bed to nearly a sitting posture;—lying flat, however, produced neither cough nor irregularity of pulse. The state of his bowels was improved by an occasional dose of castor oil with tincture of opium.

20th. Attacked with severe febrile and inflammatory symptoms, with tenderness of the abdomen, pain in the chest, cough, and difficulty of lying down. Tongue furred. The pulse rose to 112 and even 120, and this accompanied with a red and turgid state of the face as if erysipelas were coming on.

Mittatur sanguis e brachio ad uncias duodecim.

Foveatur Abdomen.

Sumat Mist. effervesc. cum Vini Ipecacuanhae ℥xv; sexta quaque hora, et habeat Olei Ricini f. ʒvj cum Tinct. Opii ℥v vespere.

21st. The bleeding gave him relief; the blood, which was taken in a full stream, was covered with a sizzly coat nearly half an inch thick, but was not the least cupped. In the evening the symptoms returned with severity.

Repetatur sanguinis detractio ad f ʒxij.

24th. The inflammation of the face had put on all the characters of well marked *Herpes labialis* of most unusual severity, covering not only both lips but the alae and the point of the nose. Some blood had been passed in his motions; his urine had become more copious, and the sediment which subsided to the bottom had diminished.

R. Pulv. Ipecacuanhae gr. j,
 Hydrarg. cum Creta gr. iij;
 Fiat Pulvis ter quotidie sumendus.
 Foveatur Abdomen.

25th. Urine much more copious, amounting to three pints: it has assumed the *dingy brown colour which marks an admixture of the red particles of the blood.*

26th. Eruption taking its natural course of scabbing,—has not extended since the first day of its appearance. He continues improving, but has some *pain and weakness of his loins*; a little pain occasionally in the shoulders and left side;—he lies down easily;—legs continue to swell. Pulse 78, soft and of good strength. Tongue moist, but rather furred. One small dejection with slight trace of blood. The tenderness of abdomen gone. Urine in good quantity, tolerably clear, but *coagulates by heat.*

27th. Gums sore from the mercury.

Continuantur Pulvis Ipecacuanhae et Mistura.

28th. Complains of sore-throat, but there is scarcely a blush of redness to be perceived.

29th. Throat still sore.

31st. Is decidedly better—the eruption is nearly gone. Legs continue to swell, though less; lies down without inconvenience, and only complains of *weakness and pain of the small of the back.* Bowels confined. Urine pretty copious, slightly turbid. Pulse 86, of good strength. Tongue moist, very slightly furred.

He was removed on the 2nd of November to another ward so much improved as to be able to walk about; he was taking a grain of ipecacuanha three times a day with reference to the disordered secretion of his bowels.

On the evening of the 10th, Mr. Stocker, the skilful and experienced apothecary of the hospital, was called, on account of a sudden attack of dyspnoea with symptoms of inflammation in the chest.

Mittatur sanguis ad f. ̄x. Applicetur Empl. Cantharidis Sterno.

11th. He had been relieved by the bleeding. Blood covered with sizzly buff, slightly coagulated. Was quite unable to lie down in bed,—his pulse 120, rather indistinct in the right wrist, but not so in the left. He complains of no particular pain, but the dyspnoea is very urgent and apparently increasing.—The urine scanty.

R. Hydrarg. Oxydi cinerei gr. j,
 Pilul. Scillae comp. gr. xij,
 Opii purificat. gr. j;

In Pilulas iij divide hora somni sumendas.

Repetatur sanguinis detractio ad eandem qua heri quantitatem et applicetur Emplastrum Cantharidis Sterno.

The bleeding gave only temporary relief; the blister was repeated on another part of the chest in two or three days. The oedema increased, and his appearance became more depressed.

15th. R. Mistur. Camphorae f. ʒx,
Liquor. Ammoniac Acetat. f. ʒiij,
Spir. Aether. nitr. f. ʒfs;

Misce, fiat Haustus ter quotidie sumendus.

Repetantur Pilulae.

Nov. 18th. The symptoms had suffered little change: he sat erect in bed, leaning a little forward, during the day, and at night always wished to sit by the fire. His countenance pallid, rather shrunken, a little puffy about the eyes, and expressive of great anxiety. Hands and legs oedematous; urine very scanty. Pulse 120, quite regular. Respiration 36, with great effort. From the anxiety of his countenance coupled with the position of his body I was led to consider the mischief to be in the pericardium.

20th. The symptoms unaltered, but he loses flesh and grows weaker. Urine very scanty. Pulse 104, quite regular, and of considerable strength.

On the 22nd a grain of digitalis was added to each dose of his pills.

24th. Still as before, never lying down; he complains of some tenderness in the situation of the liver. Resp. 32, performed with great effort and a slight groan on expiration, which however appears voluntary. Pulse 108, full, strong. On percussion the chest appears quite resonant, except about the region of heart and pericardium. Dejections reported healthy.

25th. Was lying nearly flat in the bed, inclined to the left side. Pulse 104. Resp. 40. Rather more urine.

29th. Lies, slightly raised in bed, rather on his left side. There is considerable oedema of the lower extremities. Resp. 32.—Pulse 86, firm, hard, with a bound, perfectly regular. Urine scanty, but clear, and of a natural colour. Great tenderness in the upper part of abdomen, which, he says, came on since the morning. And he likewise speaks of a sense of water rolling about in the right side of the chest, as having come on since the morning. On percussion the right side of the chest is more sonorous than the left, which is rather dull. By assistance of the stethoscope I thought the sound of the heart's beat was as if performed through fluid. Head perfectly free from any thing like delirium or wandering.

He died a few hours after the visit.

SECTIO CADAVERIS.—Nov. 30th.

Countenance purplish, bloated; some oedema of legs. The pericardium contained four ounces and a half of clear serum, which became gelatinous a few minutes after being removed. Both portions of the pericardium had many patches of a villous

deposit of fibrin, thrown out recently so as to be easily peeled off in some parts, in others the fibrin was more firmly fixed. This coating of fibrin covered with a thin pellicle some inches of continuous surface on the posterior and lower part of the loose portion of the pericardium: it was also remarkable that it was attached very firmly and thickly on the heart in the course of the coronary vessels; it occurred likewise in patches of half the size of a sixpence on many parts; not forming adhesions, but presenting a rough villous surface. The heart was large and firm; the only valvular disease was in the semilunar valves of the aorta, where, in the angle between two of the valves, a triangular and solid deposit of bone of the size of a pea was found. The left lung adhered very firmly throughout most of its extent, and was in every part converted into a gray hepatized structure, very few portions admitting partially the entrance of air. There was some effusion into such parts of the cavity of the chest on this side as the nature of the adhesions admitted. The right lung was soft, and in structure not unnatural, but oedematous; filled by the effusion of serum, so that the fluid ran out mixed with innumerable fine bubbles of air immediately it was cut into. The whole cavity of the chest on this side was filled with serum, but the lung not compressed by it.

A pint or two of clear and transparent serum was effused into the cavity of the abdomen. The intestines and stomach were greatly distended with flatus, and there was an appearance as if the vessels running along the large curvature of stomach were distended with air; an oblique hernia was found on the right side; a few of the mesenteric glands were enlarged to the size of horse-beans. The peritoneal coat of the liver covered and rendered somewhat opaque by a very thin coating of fibrin apparently not very recent, and a number of flocculent deposits of the same kind. In the size and substance of this organ no obvious disease; rather pale coloured, of a purplish drab throughout, and not of a firm consistence. The gall-bladder full of healthy bile, and larger than natural. The pancreas healthy. The spleen dark coloured, with a slight adventitious covering. The KIDNEYS were completely granulated throughout (Plate I):



FIG. 1



FIG. 2

KIDNEY IN DROPSY

FIG. 1. External view of one of the kidneys of KING (*page 5*), from half of which the tunic is removed, showing an advanced stage of that granulated condition of the organ which was in this case connected with the secretion of albuminous urine.—Anasarca and hydrothorax accompanied this disease.

FIG. 2. A longitudinal section of the same kidney, showing the most advanced stage of the granular change (*page 8*).

externally the surface rough and uneven; internally all traces of the natural organization nearly gone, except in the tubular parts, which were of a lighter and more pink colour than usual.

In this case we have a very well marked example of a granulated condition of the kidneys, connected with the secretion of coagulable urine. If we can form any judgement of the priority of disease from the more advanced state of organic change, we shall be inclined to consider that the disease in the kidney was first established, and had probably laid the foundation for that effusion into the cellular membrane which had taken place previously to his admission.

There was no evidence whatever of organic disease in the liver from the beginning, except the account he gave us of his mode of life. Examination after death afforded no ground for the opinion that either the viscera of the chest or the liver were in the first place materially diseased. On the contrary, the organization of the liver and its functions, as far as any means of judging could be afforded by inspection after death or observation during the progress of the disease, remained unimpaired to the very last; and the morbid appearances of the heart, though evidently connected with the fatal result of the case, were of a nature to evince recent inflammatory action on the pericardium, and not that state of disease which has commonly been observed in connexion with general dropsical effusion. The diseased state of the left pleura was evidently a matter of longer standing, and the firmness of the adhesion gave ground for supposing that some pleuritic attack must have existed previously to his admission: it is not however at all improbable, that greater part of the mischief done to the substance of the left lung had taken place between the 20th of October, when he suffered the severe inflammatory attack, and the 29th of November, when he died. The serous effusion which was found more particularly in the right lung, might have been, and most probably was, one of the last circumstances which took place near to the close of life. At the time this case came under my care, my mind was not made up as to the indications which were to be derived from the

albuminous quality of the urine; and therefore, though I noticed the fact, I did not afterwards so regularly mark the progressive changes of this secretion as I have since been in the habit of doing. I have however no reason to suppose that it lost its tendency to coagulate. The dingy colour occasionally communicated to the urine in this case by admixture of blood, serves further to connect it with the other cases of dropsy with diseased kidney which I have seen; and it is worthy of remark, that the patient complained often of pain and weakness in the loins, a symptom which is not unfrequently connected with this peculiar disease of the kidneys.

The tendency to inflammatory affection in this man was a striking feature in his case, and appears to me connected immediately with the condition of the kidneys; for when the secretion of these organs is greatly deranged, the serous membranes seem always ready to become the seat of inflammatory action. The most severe instances of pleuritis I ever witnessed was in a case of diabetes, where the inflammatory disease carried off the patient in two days. In the present case the tendency to inflammation was such as would have authorized larger depletions, but I was deterred from repeating the bleeding by the decided and rapid increase of the effusion.

CASE II

ELIZABETH BEAVER, aet. 37, was admitted November 23rd, 1825, into the Clinical ward, with swelling of the whole abdomen, attended by evident fluctuation; but depending in part on tympanitic distention. The more marked effusion was into the cellular membrane of the parietes of the abdomen, and into that of the lower extremities, which were greatly swollen; and there was considerable erythematous inflammation above the ankles. Her face and arms had likewise occasionally swollen. Severe cough was excited by deep inspiration; causing some pain in the abdomen, which was slightly tender on pressure, and she complained of pain under the ribs on the left side. Her breathing was short; she was unable to lie in the horizontal posture; she slept little, but was refreshed by it; and she did not start. Pulse 112, regular. Tongue furred at the back part; clean at the edges. Bowels relaxed. The quantity of urine uncertain, and quite clear.

She had been ill altogether about six months, her illness commencing with pain in the chest, and the increase of a cough to which she had been subject

for four or five years. She was at that time under medical treatment, which removed the pain of the chest; but the cough was not cured. The catamenia had stopped about four months, and a week after the last time she was regular the left leg first began to swell, afterwards the right leg; and in two months the abdomen likewise. For the last three months the bowels had been much relaxed. The state of great depression in which this woman was, and the constant diarrhoea, induced me to order the following prescription.

R. Hydrarg. cum Cret, gr. v,
Confect. Opii gr. x;

Fiant Pilulae ter quotidie sumendae.

Habeat Julepi Ammoniae Subcarbon. ʒiſs cum Confect. Aromat. ʒſs sexta quaque hora.

24th. Bad night; breathing a little more easy; cough not severe; is obliged to be supported by pillows in bed; legs very painful; inflammation above the ankles increased; complains of pain in the abdomen and across the loins; four or five dejections, curdly, foetid, and rather scanty. Tongue rather furred at centre and base. Not much thirst. Pulse 112, very weak, quite regular; hands cold and purplish.

25th. Tolerable night; cough less; expectoration tough puriform mucus, moderate in quantity. *Urine coagulates by heat*, for the last two days scanty, passes frequently and unconsciously. Two watery dejections, much improved in character. Pulse from 108 to 120, weak. Tongue a little furred, and red at its edges.

The reports for the next three days were very nearly the same; but she gradually became weaker. The respiration increased to 32 in the minute, the pulse to 132. Vesications arose on various parts of her lower extremities, and she died on the evening of the 29th. The only remedy which was given with immediate reference to the dropsical symptoms, was a little squill pill and gray oxide of mercury, with a grain of opium twice a day for the last three days; while at the same time her strength was supported to the utmost by mild diet and by cordials.

SECTIO CADAVERIS.—Nov. 30th.

Whole surface greatly oedematous, and light purple ecchymoses covered with vesications on the upper parts of both thighs, and on the sides of the abdomen. Some effusion had taken place into the cavity of the chest on both sides, but the lungs throughout were in a tolerably healthy condition. Heart unusually small, and feeble in its structure; the cavity of the left ventricle very small, and the parietes of the right very thin, but not distended. In the pericardium about one ounce and a half of serum.

The cavity of the abdomen contained a very considerable quantity of limpid straw-coloured serum. The intestines were somewhat distended with flatus, but presented no unhealthy appearance. The liver externally gave the idea of being granulated with some yellowish granules; but this appearance was very much confined to the surface; so that on making a section, although in some parts where this was most marked, there was a little of the same disorganization seen, for the eighth or tenth of an inch in depth, yet the rest of the liver was throughout tolerably healthy, but flaccid; the superficial appearance was partial. The gall-bladder contained healthy bile of very natural colour. The pancreas and spleen healthy, or not manifestly otherwise.

The KIDNEYS were both of unusual size, certainly half as large again as most commonly seen; the right was the largest: on an external view they were obviously granulated with a large proportion of yellow granular matter: on taking off the proper tunic this was more distinctly seen; and on cutting in, the whole of the cortical structure seemed to be converted into a yellow substance in appearance like fat in many parts; though in other parts the change had not gone so far. In the pelvis, the uterus and bladder small and contracted; some of the lumbar glands looked dark, and were of the size of large French beans.

In this case we have an example of dropsy with coagulable urine, connected with no other organic derangement except that which had taken place to so great an extent in the kidneys; unless indeed we take into view the small size of the heart, which appears to have been an original formation, or the result of a continued state of debility. The size of the kidneys considerably larger than usual, certainly suggested the idea that the fatty and granular substance had been the effect of the deposit of fresh matter in the interstices of the natural structure.

CASE III

MARY SALLAWAY, aged about 25, was admitted into Guy's Hospital, November 8th, labouring under anasarcaous swellings. Jan. 7th, when passing through the ward, I was requested to see her, on account of a severe diarrhoea under

PLATE II

KIDNEY IN DROPSY

FIG. 1. External appearance of one of the kidneys of SALLAWAY (*pages 12, 68, 77*). Part of the tunic is removed, to show more plainly the tuberculated and motley appearance of the surface. The secretion of this kidney was albuminous, and general dropsical effusion was a prominent symptom.

FIG. 2. A longitudinal section of the same kidney, showing its internal texture greatly altered: the general colour yellow—the lighter parts were more opaque than the rest, while the coloured broken lines, proceeding in a direction perpendicular to the external surface, corresponded nearly with the more vascular parts of the structure.

FIG. 3. A portion of a longitudinal section of one of the same kidneys, which had been injected with fine red size by the arteries, showing a large portion of the kidney nearly impermeable.

FIG. 4. A portion of one of the kidneys of CADMORE (*pages 14*), in a state of degeneration after long suffering from chronic disease. The state of the urine was not particularly ascertained, and no material dropsical effusion had taken place.

KIDNEY IN DROPSY

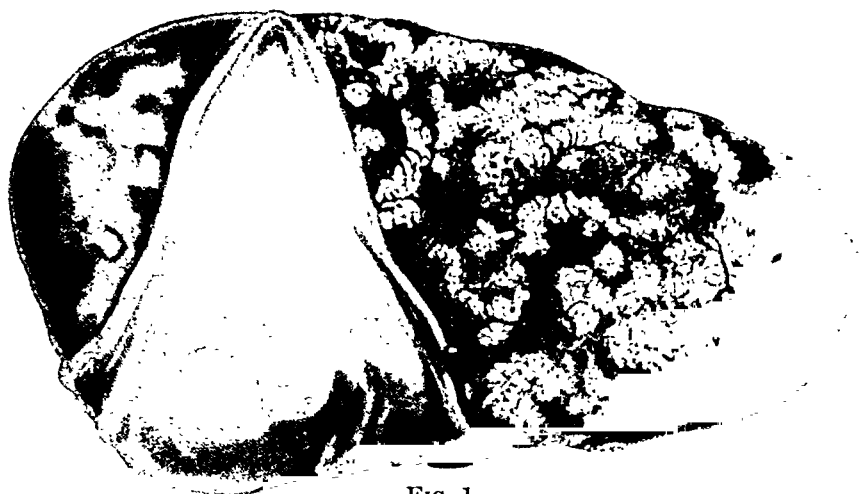


FIG. 1

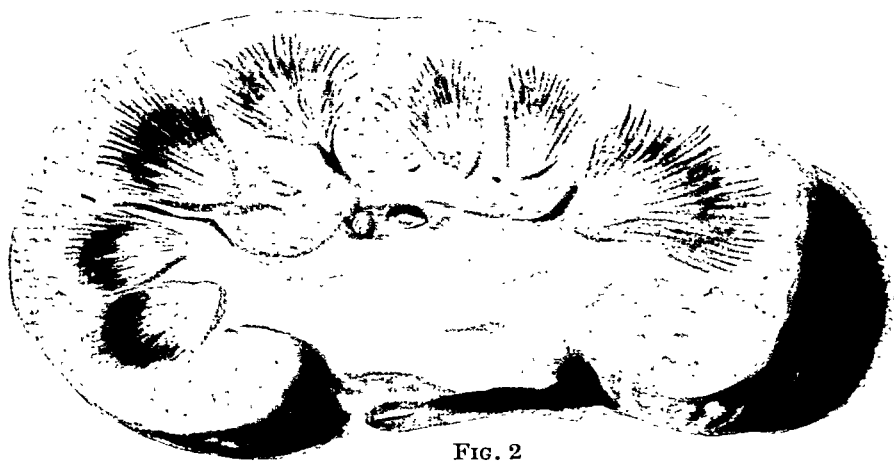


FIG. 2



FIG. 3



FIG. 4

which she was suffering: this was the first time I had observed her. I found on inquiry that about two months before her admission into the hospital she had perceived the swelling of her limbs, which she ascribed entirely to low living and having during a period of much privation drunk a great quantity of water: however, it appeared that she had lived a very irregular life, and no doubt had at some period been in the habit of taking spirits. She lay at this time on her right side, coughing very frequently, and panting as if effusion had already taken place into the chest. Her face was bloated and swollen, of a livid colour; her legs oedematous;—but I was told that they were much reduced since she had been in the hospital. Both her stools and her urine were passed chiefly in bed, so that I could not then procure a specimen of the urine. The stools were not unhealthy in colour. On the following day I found the urine *to coagulate very considerably by heat*. She was then lying on her left side, and her breathing was exceedingly embarrassed. On the 12th she died.

With regard to treatment, a very fair and careful trial had been made of the squill and mercury for nearly a month; and various combinations of squill and opium, with the occasional use of other diuretics, had been cautiously adapted to the changes in her circumstances.

SECTIO CAD AVERIS.—Jan. 12th.

In the left cavity of the thorax nearly two pints of turbid serum of a brownish colour were effused. The left lung on its upper part was very oedematous, so as to feel hard, it appeared almost fleshy when cut into, and in some parts the earliest stage of tubercular disease was taking place. On opening the right side of the chest some air made its escape. A considerable quantity of serum was found effused, and the lung was very much condensed, so that only a small portion admitted air. A thick adventitious membrane surrounded the greater part; and it was firmly glued to the pleura. The apex of the right lung was completely tuberculated, and two cavities as large as walnuts were there formed by suppuration. Most of the tubercles were in an early stage of their progress. The heart was healthy; the commencement of the aorta slightly diseased, with bony deposit.

In the abdomen about two pints of clear straw-coloured serum were effused. The liver was pale, yellowish, rather firm, and inclined to granulation; but not greatly altered in its structure, size, or consistence. The gall-bladder contained a small quantity of thin saffron-coloured bile. The spleen and stomach

healthy; the intestines externally appeared healthy, but the ilium near to the valve was ulcerated, a number of small round ulcers forming amongst the aggregate mucous glands.

The KIDNEYS externally somewhat misshapen from the tubercular character of their structure: the form did not depend upon any disease analogous to true tubercles, but upon a general change in the substance of the kidney, some parts projecting of a white colour upon a pinkish ground, the small starlike vessels running over them. The size was but little altered. The proper tunic adhered very closely. Internally the whole cortical structure was of a pretty uniform yellowish colour with many small opake and indistinct yellow spots. On injecting the arteries with fine size, it was found that considerable spaces were left free from injection externally, and on making a section the same partial distribution of the vessels was also observed (Plate II, Fig. 1, 2, 3).

This case was one where, in addition to the hydropic effusions which had so prominently forced themselves on our observation, symptoms of confirmed phthisis pulmonalis had supervened. The urine was decidedly coagulable, and the kidney in a state of degeneration, which I have in other instances remarked as connected with a cachectic state of body, both attended with anasarca, and unaccompanied by it. In Plate II where I have given a representation of this kidney, I have also introduced the section of a kidney in what I conceive a less confirmed state of the same degeneration (Fig. 4). The patient (Cadmore) from whom this was taken, and whose case I may hereafter more particularly detail, died after a most protracted illness, from a tumour connected with the left ovary, which contained the imperfect rudiments of a foetus.

CASE IV

DANIEL PEACOCK, a bricklayer, was admitted into the Clinical ward, Nov. 22nd, 1826. It appeared both from his own account and that of his relations, that he was by no means a man of intemperate habits, having very seldom taken spirits: he was in tolerable health until about two months before his admission; when being very hot by carrying a great weight, he drank some

cold beer and lay on the damp grass;—the following day, or the day after, his legs began to swell.

At the time of his admission he was anasarcaous over his whole body, but his legs were most particularly swollen, and some effusion appeared to have taken place into the cavity of the abdomen; his breathing was much oppressed. He had taken no medicine except an emetic, which had been administered on account of the sickness which attended his first attack.

R. Hydrarg. Oxydi cinerei gr. j,

Pilul. Scillae compos. gr. xij;

Contunde et in Pilulas iij divide hora somni quotidie sumendas.

R. Misturæ Camphoræ ʒj,

Spirit. Aether. nitr. ʒss;

Misce, fiat Haustus ter die sumendus.

23rd. Three copious watery dejections, with griping. Urine very scanty, and high-coloured, *coagulating by heat*. Pulse 120, small. Tongue clean. The quantity of urine in a few days increased considerably; it was of a *brown colour, apparently from admixture of the red particles of blood*.

On the 26th, half a grain of opium was added to his pills; and on the 29th, a dram of the stronger mercurial ointment was ordered to be rubbed daily upon his abdomen. The stools were always copious and watery.

Dec. 1st. The abdomen much less tense, swelling of legs and thighs nearly gone; breathing still continues short. Pulse 120, small. Tongue rather white. Urine very scanty, turbid, and high coloured. Appetite good.

Although for a time there was considerable appearance of improvement, yet the symptoms soon became stationary, and the swellings occasionally returned; and it was found necessary to adopt a variety of treatment;—for a time elaterium combined with opium produced a good effect;—the extract of taraxacum was also tried;—and a combination of calomel with antimony and opium. All, however, failed in changing the character of the urine, which still continued scanty, coagulating very strongly so as to form a complete white curd on the application of heat.

On the 12th of December Erysipelas made its appearance on the right leg and foot; an exhausting diarrhoea came on: and he sunk upon the 16th.

SECTIO CADAVERIS.—Dec. 18th.

Very little oedema except in the legs. The right cavity of the chest contained about three pints of clear yellowish serum. The lung on that side was slightly puckered and hardened at the apex of the upper lobe: the whole lung was rather condensed owing to the pressure of the fluid, but in no way disorganized, or hardened, or oedematous. The left cavity contained about a pint and a half of serum; the left lung was healthy. The heart

small but quite healthy, and its valves perfect. The aorta natural, and its internal lining beautifully white and smooth. In the abdomen no fluid was effused. The intestines to external appearance was natural, but internally showed marks of irritation throughout. The mucous glands in the small intestines enlarged; the colon as if smeared with blood; no ulcerations were discovered. The liver rather misshapen, with one or two scars upon it; and at the upper part of the right lobe a small collection of tubercular bodies, in a circumscribed group; a similar collection near the thin edge of the small lobe. The whole substance of the liver was nearly in a healthy state; a little inclined to be granulated, of a pale colour, the acini differing rather more from the surrounding parts than in perfect health. The gall-bladder not well supplied with bile. The spleen had, imbedded in its substance, a white mass half an inch deep and an inch long, otherwise it was of its ordinary appearance. The KIDNEYS afforded throughout their whole cortical structure a curious specimen of disease, apparently the commencement of granulation; they were rather large and soft; their general colour was pale, and on taking off the tunic, the whole surface was seen speckled with minute yellowish bodies: on making a longitudinal section the same bodies were seen pervading the whole cortical substance, assuming near the surface somewhat of the striated arrangement observed in the structure of the kidney at that part, and irregularly disseminated through the other parts. (Plate III, Fig. 3.)

We carefully examined the state of some of the principal arteries and veins of the body, and found them all free from the slightest marks of disease.

The appearances thus presented on examination were in the most perfect accordance with what I had anticipated, and even previously committed to writing. I had been able to trace very little evidence of disease either in the heart, the lungs, the liver or any other organ to the derangement of which we usually ascribe dropsy; but I had observed the well marked symptoms of renal irritation and disorder, from which I have of late been

led to look for decided changes in the kidney: the invasion of the disease had been sudden, apparently from repressed perspiration; the urine had been highly coagulable, and had at different times been loaded with the red particles of blood; and the ordinary medicines exhibited with unusual care and skill had failed in making any favourable impression on the disease.

CASE V

HUGH THOMAS, a stout-looking sailor, about 34 years of age, was admitted Nov. 29th. Not unhealthy in countenance: he denies having been intemperate, but has taken a good deal of spirits-and-water. Three years ago he caught a severe cold, and since that time has never felt well. About five months ago first began to swell. At present there is the most decided oedema of the lower extremities, thighs and legs, which are soft and pitting; occasionally his whole body is said to swell. Urine scanty, very little is passed in the day, more at night; high coloured and clear; *coagulates into a complete gelatinous mass by heat*. He was cupped in the region of the liver, and was ordered to take a combination of the gray oxide of mercury with squills at night, and to make use of a solution of tartrate of potash with a little of the tincture of digitalis. Under this treatment he improved for some days; his urine rather increased, and became less coagulable, so that occasionally the application of heat produced merely an opalescence. It was necessary to give purgatives, and for this purpose powders of jalap and supertartrate of potash were found best. It was remarkable that his skin was almost always perspirable. The urine continued to increase and to become less coagulable, so that occasionally the application of heat produced simply an opacity in the fluid. On the 22nd of December very urgent dysenteric symptoms came on, and from that time the greatest care was necessary to regulate the condition of the bowels.

27th. The dysenteric attack subsiding; the secretion of the kidneys rather more copious. I saw about eight ounces of high coloured urine; by exposure to heat it became covered with a fine pellicle, such as is seen on boiled milk when cooling; oedema of the legs and thighs continues.

31st. Is much better with regard to his bowels, but he passes very little urine; looks pallid and ill, and the oedema remains as it was: it is chiefly confined to the legs and thighs, which are not tense, but very soft and yielding under pressure.

Jan. 4th. Urine exceedingly scanty; on the application of heat a pellicle is formed stronger than before.

12th. Swelling increased. Urine scanty, and becomes throughout milky by heat.

22nd. Anasarca swellings rather increase about the hands as well as the legs; he always appears low in spirits, and is pallid. Urine scanty, of a very

light straw colour; becomes quite milky by heat, and remains like milk-and-water, with little tendency to form flakes or to curdle.

Feb. 12. Urine very scanty, of a brightish yellow colour; coagulates strongly by heat in the more usual curdlike manner. He has been evidently declining for some days; his cough more troublesome, the expectoration puriform, and for some days there have been symptoms of inflammatory affection in the chest. Purging frequent; dejections watery. He died on the 14th.

SECTIO CADAVERIS.—Feb. 15th.

General oedema in the lower extremities, though not tense; skin sallow, not jaundiced. About a pint and a half of turbid serum was effused into the left cavity of the thorax; and the pleura both of the lung and the ribs was covered with flakes of coagulable matter, evidently the product of recent inflammation. The lung itself firmer and more red than natural. The right side of the chest nearly free from disease; the lung on that side remarkably healthy. The heart rather flaccid, as if but little called into action. The liver pale, inclined to granulation in its appearance, but not enlarged, nor materially firmer than natural. The gall-bladder well supplied with bile; spleen rather pale coloured; pancreas natural, but grayish. The whole peritoneum appeared to have suffered from recent inflammatory action; a general gray opaque appearance prevailed throughout, and a considerable quantity of clear straw-coloured serum was effused, from which much coagulable matter had separated in flakes adhering to different parts, and particularly gravitating towards the pelvis. On laying open the canal of the intestines, it appeared that throughout the whole considerable irritation had existed, and a great secretion of serous fluid, so that the small intestines in particular, had exactly the appearance of having been washed out with water till no vestige of mucus was left. The duodenum near the stomach rather firm and rough; the stomach healthy. KIDNEYS large, very dark on their upper surface, on the lower mottled with yellow; no elevated granulation to be seen externally, but many small yellow specks. Internally the substance was remarkably pale, and had assumed the appearance of a fatty substance, with some traces of granulated structure throughout: this however depended in part on

a flaky opaque matter thickly disseminated (Plate III, Fig. 4); and this same appearance became very obvious, over the whole external surface after the kidney had been kept in pure water for a day or two; in fact, the general morbid state of the kidney approached very much to that observed in the last Case, except that the flakes of opaque matter were less numerous and defined, and the general structure was more inclined to granulation.

In this case we have another decided instance of anasarca with coagulable urine connected with disorganization of the kidneys. The long continuance of the symptoms before the patient became the subject of treatment, the very scanty secretion of urine and its coagulable nature, and the comparative freedom from disease either in the thorax or the liver, led me from the first moment I saw him to anticipate that he would not recover: and the belief that the kidneys would be found the marked seat of disease, induced me to pay attention to the progress of the symptoms, though the case was not under my own care. The result fully justified my expectations: and the peritoneal inflammation and more acute pleuritic attack which appeared to hasten his dissolution, afford but fresh proofs of the disposition which exists in this disease to severe inflammatory affection of different structures, but more particularly of the serous membranes.—I thought it probable that dissection would have shown some peculiarity in the structure of the kidneys, to which we might have ascribed the modification which the albumen in the urine seemed to have undergone, judging from the peculiar manner in which it coagulated. In this, however, I was disappointed: the kidneys appeared to be in the less advanced stage of that granulated change of which the case of Peacock has afforded one variety in its early stage; and of which the case of King, and that which I shall next relate, afford more confirmed examples.

CASE VI

MARY ANN RICHARDSON, a middle-aged woman, was admitted November 8th, 1826, with anasarca: she had been two or three times in the hospital during the last two years with renewed attacks of the same disease, and had gone

out relieved. She was now, as I understood,—for I did not see her,—in the most hopeless and advanced state of disease. The effusion somewhat diminished under moderate depletion, followed by the use of squill pill and the gray oxide of mercury, which remedy was continued for ten days without affecting her mouth. On the evening of the 21st she became rather suddenly worse, complaining of great difficulty of drawing her breath; and although assistance was immediately obtained, she died in a few minutes.

SECTIO CADAVERIS

Lungs tolerably healthy in structure; but it was found that the pulmonary artery was completely blocked up by a coagulum of fibrin of firm texture. The heart was not particularly large.

On examining the abdomen it was found, that the vena portae and its large branches going into the liver, were obstructed likewise with coagulum nearly separated from the red particles; and the splenic vein was in the same condition. The liver itself very healthy in colour and consistency, except that it bore a little of the speckled appearance resulting from a difference in the colour of the acini and the connecting substance. The gall-bladder contained some greenish bile: spleen healthy.

The KIDNEYS afforded very fine specimens of the confirmed granulated change. Of one I procured a very exact drawing; the other was injected carefully with coloured size; but they approached so exactly to the kidneys depicted in Plate I, that I did not think it necessary to have them engraved. They were rather large and bulky; the granulation was seen externally over every part of the surface, even before the tunic was removed. The granular bodies were small, of a yellow colour, and the surrounding substance more pink. On cutting longitudinally through the kidney, it was seen that the whole cortical substance was composed of the same altered structure, and the striated arrangement near the surface was almost lost. With respect to the kidney which was injected,—red size was first thrown into the artery, and this passed with tolerable facility so as to fill the whole pelvis; when the red injection had run completely, yellow size was thrown into the vein. On examining this kidney externally, a mottled surface was seen, in which the ground-work was a pink and a whitish yellow colour nearly in

equal parts; and in this were seen frequent spots of the red injection as large as moderate sized pins' heads: and besides this, the yellow injection was seen filling the beautiful star-like vessels which ramified quite superficially. On making an incision longitudinally, the cortical substance presented a confused and indistinct congeries of points of red injection and of yellow injection, with much fatty-looking matter which had not been injected. Around the outer part of the tubular portions the yellow vessels were very numerous, converging towards the centre, and a few penetrated at least two-thirds of the whole depth of the mammillary processes. The lower portion of the tubular part contained the converging vessels filled with red injection, and these were seen opening on the points of the mammillae.

CASE VII

ELIZABETH STEWART, aged about 40. This woman, who appeared to have been exposed to the difficulties and temptations of the lower classes, had for eight years been subject to slight attacks of dropsy; during which time she had twice been in the London Hospital labouring under this disease, and had received relief. She ascribed her present attack to great exposure about a year ago, having walked in the rain from Deal to Gravesend without afterwards putting off her wet clothes. She was admitted into Guy's in October 1826, greatly swollen with anasarca, the serum running from her legs: she passed but little urine, and her breathing was greatly oppressed. She first particularly attracted my attention November 25th. At the time she had been taking the Pil. Scillae cum Hydrargyro till her mouth was very sore, combined with other diuretics: all her symptoms were greatly improved; the swelling had nearly subsided. Urine increased to nearly three pints in the twenty-four hours; pretty clear and natural in appearance: but from the history she gave of herself, her pallid cachectic appearance, and the soft unnatural feel of her flesh, I was led to suspect this might be one of those cases in which the urine would coagulate, and probably the kidneys prove diseased. Accordingly, on the application of heat to the urine I found that it *coagulated very considerably*: and she stated that for the last six months she had experienced a good deal of pain and uneasiness in her loins.

The improvement she had experienced was but temporary. In about a week the urine again became most exceedingly scanty; the quantity varied much. On the 10th of December I found it to be scanty and clear, but *coagulating by heat, becoming first milky and then loaded with a great number of flakes*. She spoke very decidedly as to feeling at all times *a pain, weight, and weakness across her loins*. There was after this time frequent evidence of inflammatory action going on within the chest, and of effusion into the cavities, which led

to several changes in the medicine, and to the application of blisters.—Jan. 2nd. She did not pass above an ounce of urine in the night. On the 3rd there were about four ounces, coagulating freely; and on this Dr. Bostock was so kind as to make some experiments.

Jan. 13th. She has been growing decidedly worse for the last three days: before that time she had been so much better as to be sitting up the greater part of the day. She is now confined to her bed, can scarcely lie on either side; her abdomen begins to swell, and her hands are oedematous; she has a frequent dry cough; her face is puffy. Urine scanty, and she complains of pain all round the lower part of the body.

17th. Evidently sinking, complaining much of pain passing through from the chest to the back; sits nearly erect; coughs, and expectorates a tough mucus slightly tinged with blood.—She died on the following morning.

SECTIO CADAVERIS

We were not permitted to examine the chest. In the abdomen three or four pints of clear serum were effused. The liver was slightly lobulated in its appearance, and the acute margin rounded; the peritoneal coat a little thickened. The substance of the liver rather increased; the acini light-coloured, not projecting the least; the intervening substance of a brighter red than natural. Gall-bladder rather small, but containing well coloured bile. KIDNEYS small, rather lobulated, of a semicartilaginous hardness, completely granulated; the small whitish or yellow granules projecting with red intervening spaces, so as to form a scabrous surface, both appearing and feeling rough. On making a longitudinal section, the kidney cut with the resistance of a schirrous gland; the tubular part was drawn much nearer to the surface than is natural; the cortical part indistinctly granulated throughout, of a grayish drab mixed with purple (Plate III, Fig. 1 and 2).

Although we were not permitted to examine the chest, there is little doubt from the symptoms, that the pleura had in this case been attacked by pretty active inflammation a few days before death, and not the least doubt that very extensive effusion had latterly taken place into the cavities of the chest.

CASE VIII

WILLIAM BONHAM, *æt.* 55, a large man of florid complexion, living as a carter in the service of a cheesemonger, was admitted into Guy's Hospital, December

PLATE III

KIDNEY IN DROPSY

FIG. 1. External view of one of the kidneys of STEWART (*pages 21, 77*), from part of which the tunic is removed, showing a hard contracted and granulated state of the kidney, which was connected with the secretion of albuminous urine, and was accompanied by repeated and obstinate anasarca, and by effusion into the cavities.

FIG. 2. A longitudinal section of the other kidney in the same case, showing the hard and granulated texture of the whole cortical part, and the striking manner in which the tubular portions are drawn towards the surface of the kidney (*page 70*).

FIG. 3. A longitudinal section of part of the kidney of PEACOCK (*pages 14, 70*). The whole cortical part soft and of a pale colour, and interspersed with numerous small yellowish opake specks. The urine was albuminous, and extensive dropsical effusion attended the disease.

FIG. 4. A longitudinal section of part of the kidney of THOMAS (*pages 17, 70, 76*) soft, pale, and granulated; the urine was albuminous, and attended with obstinate anasarca.

KIDNEY IN DROPSY

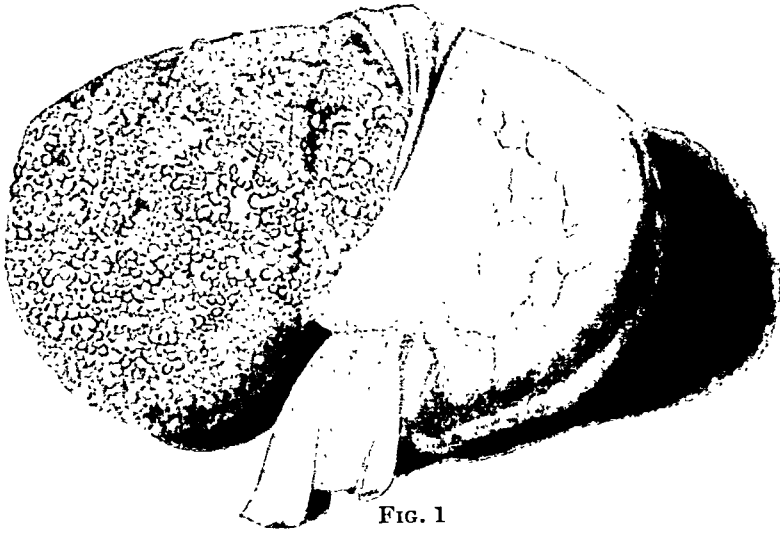


FIG. 1



FIG. 2

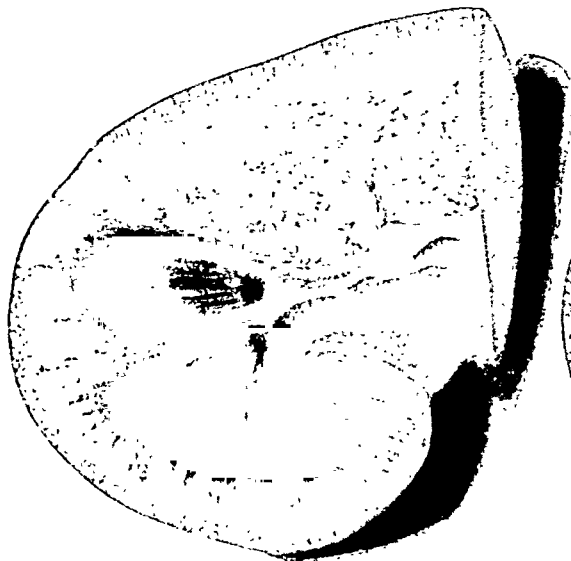


FIG. 3

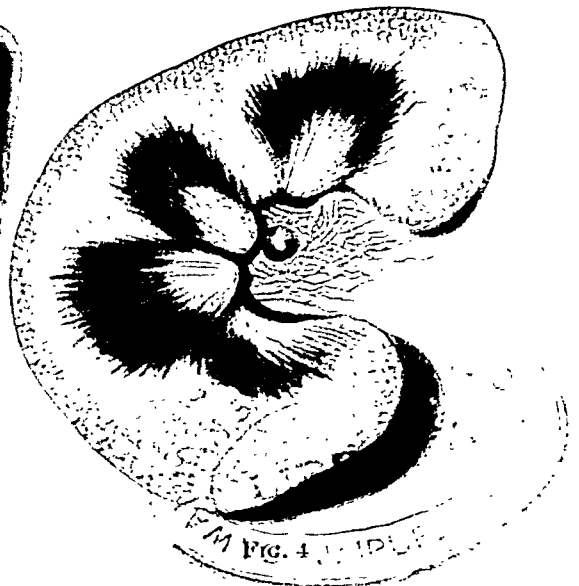


FIG. 4

13th. A married man, habitually taking a good deal of spirits, stated to have enjoyed till within two or three years a good state of health, except that about eleven years ago he suffered from severe inflammation of the chest. For the last two or three years he has experienced occasional pain in his back and loins, and has been subject to complaints which he has considered gravel, passing his water frequently and in rather deficient quantities. For nearly a year he has been much out of health from an attack of gout, and great shortness of breath. About two months ago, after much exposure to cold and wet, his legs first began to swell. At the time of his admission his legs and thighs and scrotum were most enormously swollen. Anasarca extended over his whole body, both the abdomen and the back; his left hand was also puffed up by the effusion into the cellular membrane.

15th. Urine of a deep yellow colour, clear, and *coagulating in a very marked manner by heat*, assuming a white curdled form.

He derived great relief from the means employed, for a day or two, but then his cough increased; he was obliged to be raised very much in bed; his urine became more scanty, but was quite clear.—He sunk and died on the sixth day after his admission.

SECTIO CADAVERIS

The lungs adhered almost universally; and in those parts of the cavity where this was not the case, serum had collected. The lungs themselves were oedematous in a high degree. The heart remarkably enlarged; on the left side it was very thick and strong; on the anterior surface was one of those opake, white, superficial patches which are frequently observed; the valves all perfectly healthy. The liver was rather hard and solid, but not diseased in structure. The spleen was soft; pancreas and intestines healthy. The bladder contained a few drams of urine. The KIDNEYS were very small, and hard in consistence, feeling almost cartilaginous; their prevailing colour was purplish; on their external surface they were distinctly granulated in texture; and on making a longitudinal section the same was perceptible throughout: it was remarkable that the cortical portion was exceedingly thin, so that the distance between the termination of the tubular part and the external surface was much less than in the healthy organ. In this respect, as indeed in most others, the kidneys agreed very exactly with a drawing which was made for me from the kidney of a dropsical patient about two years ago; and likewise with the kidney of the last patient,

which is most accurately depicted in Plate III, Fig. 1 and 2; the only difference being, as far as I could discover, that in the kidneys from which the engraving is taken, the granular appearance was rather more marked, owing to the less general prevalence of the purple colour.

In this case we again distinctly trace the existence of a highly diseased condition of the kidney, coupled with the secretion of albuminous urine. The enlarged state of the heart would seem to bespeak some cause of obstruction to the circulation through the system beyond what we discovered, nor will I venture to say what share this might have had in giving rise to the dropsy.

CASE IX

— SMITH, a married woman, who keeps a mangle, of a pallid countenance, marked with the small-pox; she has lived a very irregular life, and has drunk beer and spirits to great excess. I first saw her, and only casually, December the 3rd, three days before her death. A great variety of treatment had been adopted with care and perseverance: amongst the rest she had been put completely under the influence of mercury used in combination with squills, but nothing had afforded her more than very temporary relief. The account she gave me of her complaints was,—that thirteen weeks ago, without any cause of which she knew, a general swelling came on over her whole body and limbs, and had continued more or less ever since; she had never before experienced the same disease; for the last three days she had found the greatest difficulty in assuming the horizontal posture, and during the last night could not lie down at all: her countenance was somewhat bloated, her legs completely oedematous; her left arm, on which she had supported her weight, greatly swollen; she denied having any particular pain, except occasionally a *little across her loins*. Urine rather less than eight ounces in twenty-four hours, when first passed it was clear, but of a *dingy brown* colour; it became turbid on cooling, grew clear on the application of a gentle heat, and by raising the temperature nearly to the boiling point, *it coagulated in a very marked degree*, so that it put on the appearance of thick treacle-posset. My friend Dr. Prout was so obliging as to examine a portion of this urine, and he considered it a variety not very common; its specific gravity was about 1021; it contained a large proportion of albuminous matter partaking of the character of that of the serum of the blood, and it likewise deposited the lithate of ammonia. No particular change took place in the symptoms, except their gradual increase, and she died on the 6th.

As I felt quite convinced that this was a case in which the kidney had undergone alteration in its structure, I made every endeavour to procure the

examination, which was with some difficulty granted on the following day, when it was performed by the assistance of my friend Dr. Hodgkin, and Mr. Wright of Rotherithe, who had seen the patient in an earlier stage of the disease.

SECTIO CADAVERIS.—Dec. 7th.

The lungs were compressed by the serum effused into the chest, but in other respects were perfectly healthy and crepitant; the heart quite healthy, both in its general structure and in its valves; a very large quantity of serum, not less than three pints, in each cavity of the chest, perfectly limpid in the right, rather turbid in the left; about one ounce in the pericardium. The liver appeared externally quite healthy, and the gall-bladder contained good bile in sufficient quantity. On cutting into the liver, although the structure was not deranged, yet towards the thinner parts it was more firm than in perfect health, and a little more pale. The pancreas, of healthy structure and colour, but rather hard. The internal lining of the stomach towards the pylorus a little vascular. The duodenum was likewise remarkably vascular, so that the folds of the mucous membrane looked like turgid red lines crossing the internal surface in different directions; the other abdominal viscera were healthy.

The KIDNEYS presented most decidedly the granulated structure; this was somewhat marked externally, the higher points of the granulation being smaller than I have often observed; and on cutting into the substance, it was seen that the natural structure was destroyed throughout the whole cortical part, which was mottled as in the two last cases I have described; but this morbid structure appeared in its most advanced stage around the tubular parts. I could not obtain permission to have a drawing made of these kidneys; but I regret this the less, as the gentlemen who were present, both of them observed the fact, as likewise the comparatively slight derangement of the liver.

CASE X

MARY CASTLE, *act.* 39, was admitted into Guy's Hospital, December 27th, 1826. Has been subject to cough and dyspnoea for eight years, but more

severely for the last four years, after having suffered from an intermittent fever. She has been three times in different hospitals, affected with anasarca swellings: the present aggravation of her symptoms took place about a month before her admission. Her legs and thighs were swollen to the greatest excess; the cellular membrane of the abdomen was also tense with serum, and there was decided fluctuation from fluid in the cavity. The countenance exceedingly purple and bloated; the lips, nose and tongue, purple; eyes suffused and prominent; and the dyspnoea so great that she lay down with the utmost difficulty. The urine very scanty, not above six ounces in twenty-four hours; *coagulating decidedly*, though not to the extent I have often observed.

In the progress of this disease some alleviation was occasionally procured, but no very material amendment at any time took place. The urine always continued very scanty; sometimes it was tolerably clear, at other times it became turbid on cooling; at other times it bore the dingy colour which usually denotes the presence of blood: almost always the urine retained its coagulable property; but in general this was limited to a dense deposit of brownish flakes, the whole fluid not becoming milky or curdled. On one or two occasions diuretics had the effect of increasing the urine to a pint and a half and two pints in the twenty-four hours; but although benefit was generally derived at first from each new combination, yet after a very short time it lost its power. The *vinum colchici* was occasionally combined with purgatives with advantage; indeed purgatives always gave relief. The infusion of juniper berries with the acetate of potash was given as a drink, and the infusion of broom tops with preparations of squill: but decidedly the most relief was derived from the solution of the supertartrate of potash, and at the same time small doses of digitalis in powder.—She died on the 17th of February.

SECTIO CADAVERIS.—Feb. 19th.

There was but little effusion into the cavity of the chest, but the lungs adhered very considerably in some parts to the pleura costalis. The membrane lining the bronchial tubes was injected and vascular, and the tubes themselves appeared dilated; the substance of the lungs was healthy, but they were in a state of oedema. The heart was remarkably pale and flaccid, and there was very little difference in the thickness of the parietes of the two ventricles; a small quantity of serum more than natural had collected in the pericardium. The abdomen contained several pints of serum. The liver was mottled, showing the yellow acini in a red ground: but although this was very strongly marked, yet the liver was neither hard nor tuberculated in its structure; but on the contrary, was smooth and not very firm in its con-

sistence; the gall-bladder was full of bile. The KIDNEYS were contracted and hard, and on removing their tunic the surface was scabrous; but the projecting roughness was of a pretty uniform gray purplish colour, and the same was observable on making a section.

In this case it appears that the cause of the effusion was somewhat complicated. No doubt the condition of the lungs and the obstruction produced by the chronic bronchial disease had a large share in producing the symptoms we have observed: still, however, the condition of the kidneys so nearly according with that of others in cases where the urine has possessed similar qualities, leads us in this fresh instance to mark the connection between the obvious morbid state of the organ and its very deficient powers of healthy action.

CASE XI

HENRY IZOD, aet. 25, was a Smithfield drover, and a man of very irregular habits. He had long been accustomed to get intoxicated with porter, but had only taken spirits to excess, for the last year, during which time he had generally lodged at a public-house, and had been much exposed in his work to the inclemency of the weather; seldom wearing a hat, never changing his clothes when wet, and being almost daily intoxicated: he had frequently suffered from cough, particularly in the winter. He had not enjoyed good health for two or three years; and on one occasion about a year ago had an attack of dropsical swelling; he had been nearly well again till the beginning of October, about seven weeks before his death, when after drinking and exposure he became swollen all over. He was under the successive care of two very judicious physicians. He took squills, digitalis, and other diuretics, and a state of salivation was kept up for some days. I never saw him but once, (about five days before his death,) at which time his swellings were reported to be considerably diminished; but he passed very little water, and not being able to obtain any I did not examine its qualities: he was in an exceedingly low and reduced state, his mouth still very sore.—He died on the 23rd.

SECTIO CADAVERIS

As this was a case in which, though the habits of the man were those which are supposed to give rise to chronic hepatic disease and consequent dropsy, I saw no evidence of such

disease either in the appearance, or in the other symptoms; and as the effusion had come on in the last instance rather rapidly, and the patient had not seemed to bear mercury well, I was very desirous of ascertaining the relative state of disease in the liver and the kidneys; and accordingly obtained permission to examine the body on the 25th, which I did at the late residence of the patient, with the assistance of my zealous friend Dr. Hodgkin.

The legs oedematous; slight oedema of the abdomen; about three pints of clear straw-coloured serum effused into the cavity of the abdomen; about an equal quantity in the two cavities of the chest. The lungs were not closely contracted, as if long compressed by a fluid, but were tolerably healthy in their first appearance; the whole, however, somewhat oedematous, and the upper lobe on each side rather condensed and red, as from some degree of chronic inflammation. Near the apex of each lung was a contraction or cicatrix, and within that a small portion of white gritty matter.—The heart was rather large, but in its structure healthy.—The liver was of the most natural liver-coloured red. I should have said that I never saw this organ in a more healthy state; but on very careful inspection the acini appeared lighter than the ground, and somewhat more so than natural. The spleen small, but natural. The stomach was rather loaded with mucus, and the inner coat grayish. Intestines healthy both internally and externally.—KIDNEYS most decidedly diseased; they did not feel so firm as natural, were almost white in external appearance, rather large and lobulated, without any signs of granulation, and only showing a few star-like vessels distributed on the surface; otherwise of nearly one even surface, and on most minute inspection no mark of structure as usually seen on the surface of the healthy kidney was discoverable. On making a complete longitudinal section, the same gray-white colour pervaded all the cortical part, with little sign of natural structure; the faint appearance which did exist, preserved those marks of lines proceeding towards the surface, which are often more evident in the healthy kidney. The tubular part was also faintly coloured. An external view

PLATE IV

KIDNEY IN DROPSY

FIG. 1. The external appearance of the kidney of izon (*page 27*), which was nearly white and rather lobulated. The character of the urine was not ascertained, but the most confirmed anasarca attended the disease.

FIG. 2. A longitudinal section of the same kidney, showing that the white colour pervaded the whole cortical part, which, however, exhibited distinctly its radiated structure. The tubular part was of a light colour.

FIG. 3. A small part of the surface of the same kidney after it had been macerated for a few days, showing the granulated appearance, which was before not seen, and is not found in the healthy kidney.

FIG. 4. A part of the surface of the other kidney, in the same case, after the arteries had been injected with red, and the veins with yellow size. The same appearance extended over the whole (*page 29*).

FIG. 5. A section of a portion of the same injected kidney.

KIDNEY IN DROPSY

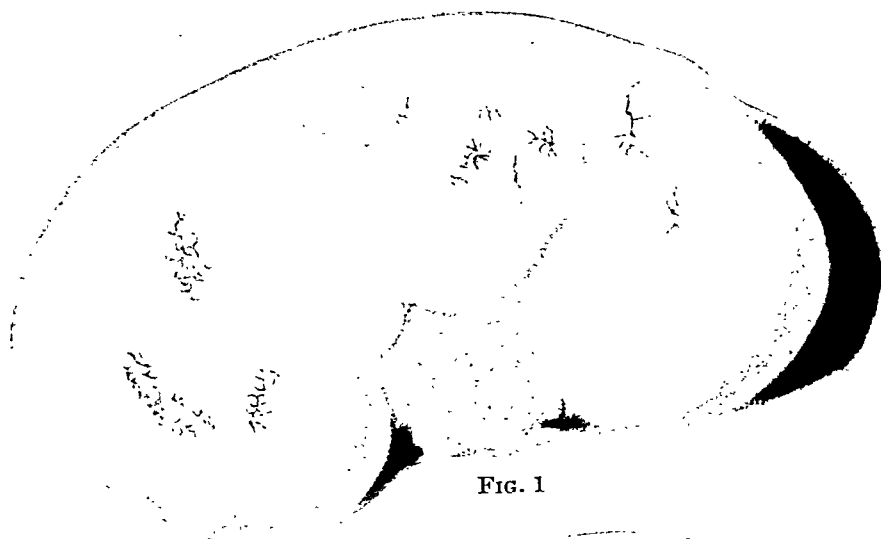


FIG. 1



FIG. 2

FIG. 3



FIG. 5



FIG. 4

and a section were drawn with great care, and from them the engravings of Plate IV, Fig. 1 and 2, were executed. The other kidney was injected,—the arteries with red, the veins with yellow size. The injection ran freely from the arteries into the pelvis of the kidney; the general structure did not seem greatly deranged. (Plate IV, Fig. 4 and 5.) After that part of the kidney which had not been injected had undergone maceration in spring water for about a fortnight, it showed a number of white opaque specks over its whole surface. (Plate IV, Fig. 3.)

This then was a case of general anasarca, connected with most decidedly diseased appearance of the kidney, and scarcely any other organic lesion; but it was not ascertained what had been the condition of the urine.

[While the proof of this page was before me for correction (April 4th) the following case occurred.]

CASE XII

— GALLOWAY, æt. 22, a watch-case maker by trade, was admitted on the 7th of March, 1827, into Guy's Hospital. He was in a state of general anasarca. It appeared that for the last year or two he had been intemperate in his habits, being often intoxicated with spirits, particularly with gin. About the month of November last, while under the action of mercury for syphilitic disease, he got wet, and soon after this began to show signs of dropsical effusion. A little before Christmas he was admitted into one of the hospitals of the metropolis, and was treated with mercurials for his anasarcaous affection; he left the hospital, however, but slightly relieved. When admitted into Guy's his mouth was still very sore with mercury; he was swollen generally, his countenance was pallid and bloated, and his legs distended with oedema. His urine was scanty, and of a *slightly dingy colour, coagulating decidedly by heat*. Various remedies were employed, but with little effect: he became the subject of seizures of an epileptic character, which returned several times during the last three or four days of his life; and very decided symptoms of inflammatory affection of the chest, with cough and a quick sharp pulse, came on.—He died upon the 2nd of April.

SECTIO CADAVERIS

On both sides of the chest were well marked signs of recent inflammation of the pleura. A few ounces of serum were effused,

in which gelatinous coagula and shreds of fibrin were floating; and both the pleura of the lungs and of the ribs were covered in parts with thin layers of a recent false membrane, presenting a rough and rather reticulated surface. The substance of the lung did not appear altogether to have escaped the effects of inflammation; but the injury done was slight, and every part admitted air. The bronchial tubes were of a more chocolate colour, from venous congestion, than natural. The pericardium contained about two ounces of clear fluid. The heart was quite healthy in the structure of all its valves, but the parietes of the left ventricle were decidedly thickened. The aorta was quite natural. The liver was a perfect specimen of the healthy organ, without the slightest tendency to hardness or to granulation. The gall-bladder rather small, filled with healthy bile of the usual bright yellow colour. The spleen healthy. The pancreas a little loaded with blood. The stomach and small intestines perfectly healthy. The colon internally speckled with gray, but otherwise not diseased. The KIDNEYS disorganized throughout, smooth in their external texture, rather lobulated, of a pale yellow colour, with a few superficial vessels; and on being examined internally, the same gray yellow colour pervading the whole cortical part, with some more opake yellow spots irregularly intermixed. The tubular structure pale and indistinct; in a word, approaching more to the condition of the kidneys mentioned in the last case, than any others I have examined.

Here then we have another illustrative example of this most fatal disease. The short history would appear to be, that the kidneys became deranged, perhaps disorganized, by the abuse of spirituous liquors; that in this state the combination of circumstances which gave rise to suppressed perspiration had confirmed the disease; and in its progress, not only anasarca had shown itself, but the pleura had become inflamed, and the head had suffered. To what extent or in what way the head had been implicated, we had no opportunity of ascertaining by inspection; but there could be little doubt that some serious mischief had lately taken place. My diagnosis in this case had been

formed entirely from the nature of the urine, and the absence of all symptoms indicative of other organs being diseased; while the general leucophlegmatic aspect of the patient, and the history of the disease, strongly confirmed my judgement.

CASE XIII

THOMAS DRUGGET, aet. 37, was admitted under my care into Guy's Hospital on the 7th of December 1826. He was a carman, in the habit of drinking a little, while in his work, but by no means an intemperate man, coming home very regularly, and always passing his evenings with his family. About a fortnight before his admission he was attacked with sickness at the stomach, and shortness of breath; purging then came on, and vomiting: about nine days before admission his face and legs began to swell. The urine had been deficient in quantity the whole time. He complained much of tenderness at the pit of the stomach. Pulse 72, of good strength. Tongue white; the oedema was by no means great; his face looked a little puffy, and his legs were so far swollen that he could not button the knees of his small-clothes.

Applicentur Cucurbitulae cruentae Scrob. Cordis et detrahatur sanguis ad f ̄xiv.

Habeat Pulv. Rhei cum Hydrargyri Submuriat. gr. xv. statim.

Mist. Magnesiae cum Magnes. Sulph. ʒj et Tinct. Camphor. comp. f ʒfs ter die.

8th. Bowels free: urine about three quarters of a pint in twenty-four hours; *coagulates*. The anasarca by no means considerable, and the symptoms altogether so mild as to excite no particular alarm; he is walking about in the ward, and says he does not feel inclined to remain in bed.

R. Potassae Supertartratis ʒj,

Aquae purae f ̄x. fiat Mistura quotidie sumenda.

9th. Urine not quite one pint; thinks his swelling rather increased; some feeling of oppression at the chest. He now says that two or three days before his admission he had felt some pain in the loins. Two dejections.

Applicentur Cucurb. cruent. lumbis, et detrahatur sanguinis f ̄xij.

Repetatur Mistura.

10th. Felt much relieved from the weight at the chest by the cupping; legs remain unaltered. Pulse 68, of good strength. Urine rather turbid, about a pint and a half; *coagulates*, but not so much as before.

Repetatur Mistura.

11th. Detrahatur sanguinis f ̄xij e regione lumborum ope Cucurb. cruent. Habeat Infusi Lini lbjss pro potu quotidie.

R. Jalapae Radicis gr. x,

Potassae Supertartratis ʒj,

Capsici Baccarum gr. j.

Fiat Pulvis quotidie sumendus si opus fuerit.

12th. Urine one pint and a half, dingy as from very slight admixture of blood, coagulates: five stools from the powder, watery, without pain; swelling not relieved.

Adde Potassae Nitratis ʒijss Infuso Lini quotidie.

Rep. Pulvis pro re nata.

13th. Face rather more swollen; legs diminished; urine about the same quantity, clear, but rather high coloured. Pulse 72.

14th. Feels much better, the swelling less. Urine about the same quantity.

15th. Pulse 72, legs diminished. Urine same quantity, and does not coagulate, but a slight permanent frothy scum remains after boiling.

17th. He was walking about the ward; said that his water was rather increased and his body less swollen: but he did not speak quite so cheerfully of his progress as he had done the day before.

*Rep. Pulvis ex Jalapa et Potassae Supertart. alternis auroris,
et Repetantur Medicamenta.*

Towards the evening he complained to some of the patients that his head ached: he slept apparently as usual, which was always with an inclination to snore; he went two or three times to the water-closet about six or seven o'clock, for which he had to walk half the length of a pretty long ward. About eight o'clock it was observed that he lay in bed making a very singular noise, and on going to him he was in a state of profound apoplectic stertor. Mr. Stocker was immediately called; took away twenty ounces of blood from the temporal artery, gave him ten grains of calomel, and a colocynth injection. He had one or two fresh attacks, accompanied with so much convulsion that he could scarcely be held in bed. I saw him at eleven o'clock. Pulse about 96, sharp with a jerk; he lay on his back perfectly insensible, with some inclination to convulsion of the arms, and a convulsive mode of blowing his saliva from his mouth. Pupils rather contracted, particularly the left.

Mittatur sanguis ad f ʒxvj. Olei Tiglii ʒij. Enema catharticum.

Applicetur Emplastrum Cantharidis Nuchae.

Twelve o'clock: The pulse a good deal lowered just after the bleeding; no dejection. One o'clock: Pulse risen again.

Applicentur Cucurbitulae cruent. regioni hepatis et detrahatur sanguis ad f ʒxvj.

Repetatur Enema.

He died at nine o'clock.

SECTIO CADAVERIS

General serous effusion under the integuments, from which the scalp itself had not escaped. About six ounces of clear serum in the left cavity of the chest, and less in the right; about

one ounce of serum in the pericardium. Lungs healthy, except some apparently old and sluggish tubercles, two or three in number, at the apex of each upper lobe. Heart healthy. Liver rather soft, but not strikingly so; quite natural in structure throughout. Gall-bladder healthy. Spleen soft. Stomach and intestines healthy. Arteries and veins perfectly sound and healthy: the lower part of aorta and cava were particularly examined. KIDNEYS very pale and rather soft; discovered externally nothing but the natural structure rather more marked than usual, but internally was plainly to be traced a motley granulation very small and faint in its colour and markings.

On opening the head no morbid appearance was observable in the membranes; the convolutions of the hemispheres were obviously flattened, as is generally the case when any quantity of fluid is effused within; and on slicing off the superior portion and laying open the ventricles, we found them all completely filled with a clot of blood and serum, apparently separated from the effused blood. The right crus cerebri was lacerated, soft, and full of dark bloody spots. It was evidently from this part that the blood found in the ventricles had been effused. The left crus and the portion of brain immediately between the crura was in a similar state with the right crus, but to a much less degree. There were two or three small coagula in the right thalamus, but they appeared to be quite detached. There was a very small spot of the same character in the corpora quadrigemina; the rest of the brain and cerebellum were quite healthy.

In this case the kidney, though most decidedly differing from that organ in its healthy condition, was, as might be expected from the very recent date of the disease, by no means so marked by morbid appearance as in most of the other cases of coagulable urine which I have examined. It may be considered the incipient and perfectly curable stage of this formidable disease; and I have no doubt that but for the accidental rupture of the vessel in the brain, this man might, for a time at least, have recovered perfectly, to all appearance. My treatment was directed in the

first place to take off from that general plethoric state of the system, which had been induced by the deficient secretion of urine. This I endeavoured to accomplish by abstracting blood and by free purging; and I hoped, by taking blood locally, more effectually to reduce the irritation of the kidneys themselves. At the same time I wished to urge the kidneys gently to the performance of their secretion; and for this purpose I preferred diluted solutions of diuretic salts, in the employment of which I should certainly have been more active, had I not conceived that I was fast gaining ground; and had I not wished to obtain my object without irritating the kidneys so much as to produce haematuria, which I have so often seen accompany this disease.

In the examination of this patient, the circumstance of the effusion of blood having taken place into the ventricles is somewhat unusual, inasmuch as by far the greater number of cases where blood has been effused show the coagulum embedded in the substance of the brain; and though approaching very near to the ventricle, not entering it. The peculiar convulsive character of the apoplectic seizure is also worthy of remark as connected with lesion in the structure of the *crus cerebri*.

CASE XIV

LEONARD EVANS, a Welshman of remarkably stout frame: about ten or twelve years ago said to have been the strongest man out of 1400 in Deptford dock-yard; has enjoyed much good health till about two years ago, when he had the syphilitic disease; but this was completely subdued. His occupation of late has been one which has exposed him very much to alternations of heat and cold,—being a journeyman currier; in some part of which business he has often been exposed to cold, when in a state of most profuse perspiration; but his habits have been very sober and steady throughout life. The day before his attack,—about ten days before his admission into Guy's Hospital,—he had been employed in washing skins; his feet were very wet: he found the swelling coming on about six o'clock the same evening, and he continued to swell till the time of his coming into the Hospital, under my care, Nov. 15th. He was at that time labouring under general anasarca to a great extent. Urine very scanty. He had taken very little medicine.

Sumat Extract. *Elaterii* gr. fs sexta quaque hora.

18th. The swelling rather diminishes.

Extract. *Elaterii* gr. j bis quotidie.

IN DISEASES TERMINATING IN DROPSICAL EFFUSION 35

19th. The pills have purged him very often, with much pain before they act, and much sickness. Pulse 80, full. Urine rather increased: today he first observed the dark-brown tinge in the urine, which is now very obvious, being a mixture of the red particles; *coagulates by heat*.

Rep. Extractum Elaterii mane quotidie.

20th. Urine three pints and a half in twelve hours, which is nearly six times as much as he had passed before; slightly coagulable; turbid, with red particles: feels altogether much relieved: one very copious watery and faeculent dejection.

Sumat Infus. Spartii scoparii ℥ij quoridie.

Habeat pulverem ex Jalapae Radice et Potassae Supertart. alternis auroris.

21st. Swelling a good deal reduced; urine in sixteen hours six pints and a half, of a high brandy colour; does not coagulate.

Repetantur Medicamenta.

24th. Urine six pints from 8 o'clock last night to 8 o'clock this morning, lighter-coloured; scarcely coagulates.

27th. Urine still contains some red particles, and is copious, but does not coagulate; swellings diminish daily.

Extr. Conii gr. v, ter die.

Repetantur Medicamenta.

Dec. 1st. Complains of a pain under his jaw, but the oedematous swellings are nearly gone, except a little on the instep. Urine four pints, coagulates, and contains much blood, looking quite red; three stools yesterday from the powder. Pulse 84, of good strength.

Mittatur sanguis ad f̄x. Rep. Infusum et Pulvis.

2nd. Blood not buffed, but a firm and large coagulum, quite elastic, like a mould of jelly, and of florid colour. Urine about four pints, very red, with a great quantity of ropy mucus deposited at the bottom. Oedema much subsided. Bowels not yet opened by the powder.

Mittatur sanguis ad f̄x.

R. Antimonii tartarizati gr. ½,

Opii purificati gr. ij,

Theriaca q. s.

Fiant Pilulae ij, quarumumat unam bis quotidie.

Omitt. Infus. Spartii; habeat Haustum Sennae pro re nata.

3rd. Blood with thin buff; complains of a sore throat; reports the urine which has been thrown away to be of the same colour as yesterday. He is walking about, and appears much improved upon the whole.

Liniment. Ammoniac gutturi infricandum.

Repetantur Medicamenta.

4th. Urine decidedly less red, but less copious; about two pints, mucous matter at the bottom diminished; it coagulates much more sparingly: throat relieved; he looks rather pallid; tongue moist and clear; pulse moderate.

5th. The whole of yesterday afternoon he seemed well,—was walking about the ward, and seemed comfortable: he slept soundly, but this morning at seven o'clock suddenly complained of a great difficulty of swallowing and breathing, and constriction at his throat and chest. Fourteen ounces of blood were taken from his arm, sixteen leeches were applied to his throat, and an emetic was administered; but all was unavailing,—and at about eleven o'clock he expired: the blood was highly buffed. I was informed that the urine passed since I saw him was somewhat further improved in appearance.

As I felt assured that this was a case in which neither the general circulation through disease of the heart, nor the biliary secretion through disease of the liver had any direct influence in the production of the Anasarca, but could not doubt that the kidney was more immediately the seat of the derangement,—I was very desirous of obtaining an examination, to ascertain whether any change had taken place in that organ, which could betray itself to the eye; and this was at length granted, at the late residence of the patient, about sixty hours after death.

SECTIO CADAVERIS

No sign of effusion of serum into the cellular membrane of the integuments; muscles of the body unusually strong; limbs rigid. Lungs rather gorged with blood; otherwise in structure quite healthy. Heart and pericardium quite healthy. In the cavity of the chest on each side about four ounces of fluid; in the right cavity the serum of a red colour, the lung adhering by old adhesion on the front part, and there was great congestion of blood in the back part by subsidence after death.

The liver rather gorged with blood, but perfectly healthy in structure. Spleen so soft that when the tunic was lacerated, the substance of the viscus flowed out of a chocolate colour. Stomach and intestines healthy; no effusion of serum into the cavity. The bladder contained about three-quarters of a pint of clear and yellow urine, which was not coagulable, or at least yielded only the slightest flaky coagulum; but some mucus had subsided to the bottom. The KIDNEYS presented a very curious appearance; they were easily slipped out of their investing membrane, were large, and less firm than they often are, of the darkest chocolate colour, interspersed with a few white points,

PLATE V

KIDNEY IN DROPSY

FIG. 1. Longitudinal section of the kidney of EVANS (*page 34*), unusually large, and of a deep chocolate colour from being gorged with blood. This was a recent case of sudden anasæra with hæmaturia and slightly albuminous urine.

FIG. 2. The external appearance of the same kidney, a part of which is denuded of its tunic. Intermixed with the black points are many white specks, like grains of sand, seen on the dark chocolate ground.

FIG. 3. A small portion of the surface of the same kidney after it had been macerated for a few days—this being selected as the part where the white points were most numerous (*page 69*).

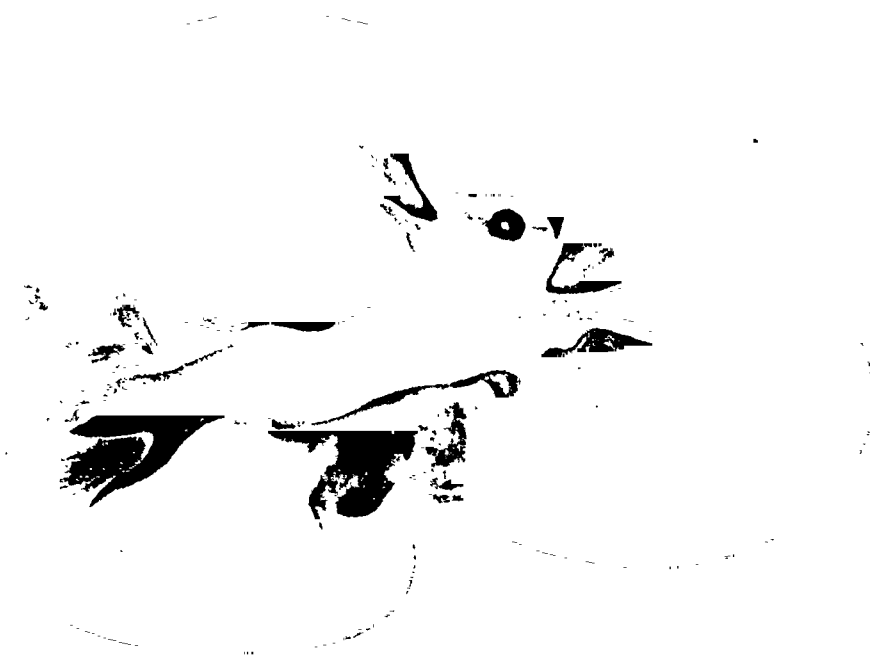


FIG. 1



FIG. 3

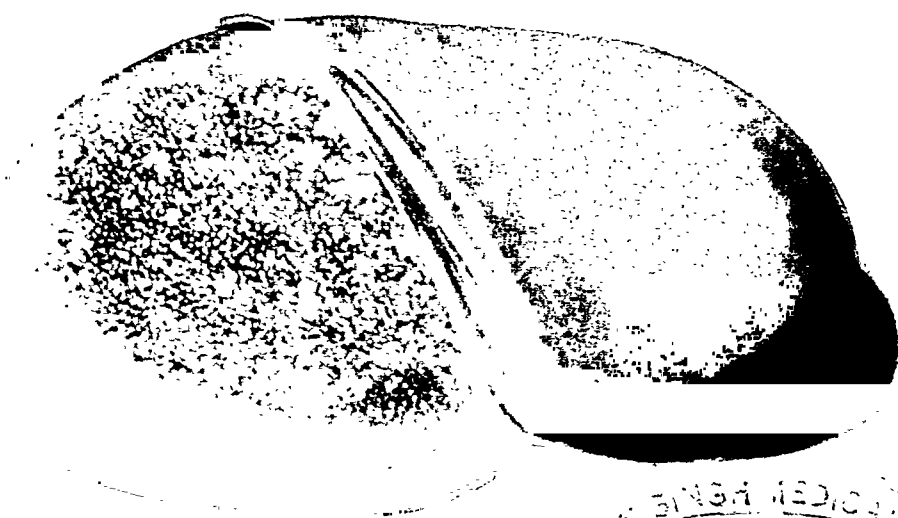


FIG. 2





and a great number nearly black; and this, with a little tinge of red in parts, gave the appearance of a polished fine-grained porphyry or greenstone. On cutting longitudinally into the kidney, this structure and these colours were found to pervade the whole cortical part; but the natural striated appearance was not lost, and the external part of each mass of tubuli was peculiarly dark; the whole mammillary processes were also of a dark colour. On being cut through and left for some time, a very considerable quantity of blood oozed from the kidney, showing a most unusual accumulation in the organ; and indeed it seemed to be from this cause that the peculiar appearance and colour arose; the very dark spots being the effect of blood either extravasated or in vessels greatly gorged. I had an opportunity of procuring very faithful drawings of the kidney. (Plate V.)—We next examined the epiglottis; and this we found to be thickened by an oedematous effusion beneath the membrane on its upper side: it was bent into the form of a penthouse with a sharp angle; and the lower surface was also thickened, and presented a doubtful appearance of superficial ulceration. When the epiglottis was cut into, a considerable quantity of serous fluid was easily squeezed out; and on the whole the opening was much contracted, and the epiglottis completely disqualified for performing its natural valvular functions.

There could then be no doubt of the nature of the attack under which the patient sunk so rapidly: inflammation of the epiglottis had been followed by oedema of that part which had produced suffocation.

In this case we have the most unequivocal proof of the derangement of the kidney being connected with the extensive and sudden occurrence of anasarca:—there could indeed be no doubt of this, from the first moment that I had an opportunity of seeing the patient. The coagulable urine,—and that urine already containing the red particles of the blood in large abundance,—led me from the beginning to form my opinion as to the seat of the disease. Moreover, dissection showed no other adequate cause for the dropsical affection: and as during life no

suspicion could be entertained that either the liver, the intestines, the heart, or the lungs were diseased, so the examination showed all these organs to be in a state of perfect health. I feel that it may be matter of doubt how far the employment of diuretics during such diseased tendency may have been instrumental in producing the peculiar appearance of the kidneys; but it is to be remembered that the particular symptom, the haematuria, which appears so immediately connected with this morbid state, has been observed to occur in a greater or less degree under all modes of treatment, and even before any treatment has been adopted in the sudden anasarca, and therefore we cannot in fairness ascribe the morbid appearance of the kidney to the remedies,—or at all events we must admit a certain high degree of disease to have existed in that organ from the commencement of the symptoms; but whether to the extent discovered in this case after death or not, we can never determine. The symptom of haematuria was evidently on its decline when the accident occurred which led to a fatal termination; and it was my intention in this case, as in the case of FISH, (to be related hereafter,) to have had recourse to local bleeding by cupping from the loins, as soon as the excessive general action had been sufficiently subdued: and very possibly if the sudden affection of the epiglottis had not come on, the disease in this case would for a time at least have completely yielded, as the symptom of anasarca had already totally disappeared, under the treatment adopted.

CASE XV

WILLIAM RODERICK, æt. 45, was admitted under my care into Guy's Hospital, on the 29th of March, 1826. A man of large stature, by trade a house-carpenter, much accustomed to drinking spirits. Three weeks before Christmas,—about four months previous to his admission,—he first found himself out of health: at that time he says that he experienced much pain in the right side near to the situation of the liver, accompanied by occasional rigors and cough, and he lay always on the right side. All these symptoms have subsided by the use of medicines, and he now lies well on either side. He is universally swollen with anasarca in a most unusual degree; particularly the legs, thighs, abdomen, and back as high up as the shoulders. He can scarcely bend his knees the least, and his hands are puffy: it appears that the left

arm is more swollen than the right; but this may be casual. Countenance pallid. Bowels regular. Urine scanty and high coloured. Pulse 84, regular, of tolerable strength. Tongue rather dry.

Sumat Pilul. Scillae cum Hydrarg. Oxyd. ciner. iij. et Digitalis fol. contrit. gr j. omni nocte.—Habeat Infusum Juniperi pro potu.

March 30th. Bowels not sufficiently open. Urine one-third of a pint in twenty-four hours, turbid on standing; but on the application of heat becomes for a few moments perfectly transparent, and then *coagulates* in a most marked degree, so as to form one curdled white mass.

R. Jalapae Radicis gr. x,
Potassae Supertartrat. ʒj. Fiat pulvis statim sumendus.

31st. Oedema rather increased: urine in appearance and quantity nearly the same.

R. Aceti Scillae ℥xx,
Spirit. Aetheris nitric. ℥xx,
Liquoris Ammoniac Acetatis fʒvj,
Aquae Menthae viridis fʒvj;

Misce fiat Haustus quarta quaque hora sumendus.

Pil. Scillae cum Hydrag. Oxyd. ciner. iij. omni nocte.

April 3rd. He has taken his medicines regularly; the swelling of the legs has much subsided. Pulse 88, rather weak.

Habeat Olei Ricini fʒvj statim.

5th. R. Oxymellis Scillae fʒij,
Potassae Supertartratis contritae ʒiij;
Misce sumat cochleare medium ter quotidie.
Repetantur Haustus et Pilulae.

7th. Urine the same in quantity, clear, brownish. Bowels confined.

Pulv. Jalap. cum Potass. Supertart. ʒss. cras mane, et repetatur pro re nata.

Repetantur etiam Medicamenta.

14th. A blush of red over the right thigh and the pubes. Anasarca generally increased. Bowels inclined to be costive; he feels relief when they act.

R. Extracti Elaterii gr. $\frac{1}{6}$,
Potass. Supertartrat. gr. iij,
Zingib. Radicis contritae gr. j;

Misce fiat pulvis statim sumendus, et Repet. quarta quaque hora ad sedes. Repetantur Medicamenta.

15th. The powder produced much vomiting, but no stools.

R. Extracti Elaterii gr. $\frac{1}{4}$,
Potass. Supertartrat. gr. v,
Zingib. Radicis contrit. gr. j;
Misce fiat pulvis statim sumendus.
Repetantur Medicamenta.

17th. He was much purged and vomited by the powder; stools watery. Much better in the afternoon; but the relief was only temporary, and he is nearly in the same state as before.

Repetatur Pulv. Elaterii cras mane, et continuantur Medicamenta.

19th. Again felt much relief from the powder, which produced vomiting, and was followed by many watery stools; the oedema was diminished, but it has returned.

24th. Opii gr. j omni nocte, et continuantur Medicamenta.

28th. Rather improved. He has passed more urine, but it is still very coagulable by heat.

May 1st. R. Cambogiae Gummi-resinae contritae gr. x,
Potassae Supertartratis gr. xx,
Zingib. Radicis contritae gr. ij,
Syrup. Zingiberis quantum sufficiat: fiat Bolus statim sumendus.

Habeat Mistur. Camphorae f̄ix cum Liqu. Ammon. Acet. f̄iij et Tincturae Digitalis ℥x ter die.

5th. On examining the state of the chest, it was found to be resonant where the external oedema admitted of the examination. There was a general sonorous rattle throughout the lungs; little impulse in the heart's action; the sound not loud but clear.

Sumat Extract. Elaterii gr. $\frac{1}{4}$ cum Potass. Supertartrat. gr. iv, sexta quaque hora ad sedes; et Opii gr. j omni nocte.

8th. Upon the whole there had been little progress towards improvement, all the symptoms remaining very nearly as at the time of admission six weeks ago.

R. Potassae Supertartrat. ʒss,
Aquae destillat. f̄xx;
Fiat Mistura mane quotidie sumenda.

10th. Rep. Mistura bis quotidie.

12th. The swelling in general is slightly diminished. Urine decidedly increased; still coagulates by heat, but not so completely as before. Several watery dejections.

15th. Continues to pass more urine: the medicine still acts gently upon his bowels.

19th. Swelling is decidedly diminished. Urine increased to two pints, remains coagulable by heat. Bowels relaxed, several watery stools.

22nd. Hands much less swollen; thighs as before: the medicine still acts freely on the bowels. Urine unaltered in its quality.

R. Pulv. Uvae Ursi ʒj,
Pulv. Conii gr. iij;
Fiat Pulvis ter die sumendus. Repetatur Mistura.

26th. Anasarca diminished. Urine nearly the same.

Repetatur Pulvis et sumat Misturam bis quotidie.

29th. Urine not so coagulable. Feels himself better; still considerably swollen.

June 2nd. Urine much increased, nearly three pints. The knee joints can be bent, and the anasarca of the whole body is much diminished. Urine scarcely the least coagulable. Bowels bound.

Sumat Potass. Supertart. ʒvj; ex Aquae purae fʒxv bis die.

Repetatur Pulvis.

5th. The swellings subside gradually and regularly; the urine increases. He complains of the taste of the medicine.

Addē Syrupi simplicis fʒj Misturæ; et continuatur Pulvis.

9th. Urine six pints in twenty-four hours, *does not coagulate*. Bowels freely open.

26th. Urine a dark olive colour, turbid, and of ammoniacal odour. Coagulates very slightly.

July 3. The urine, which had become quite clear for three or four days, is now again brown and turbid, and deposits a white sediment, which sticks to the vessel: odour ammoniacal, scarcely the least coagulable by heat.

The urine became again clear in a few days. He continued the same remedies uninterruptedly to the end of July, when he was completely cured, having been detained a few days by a slight feverish attack.

In this patient the extent of the anasarca and the coagulable quality of the urine were both of them more remarkable than I ever before observed. After his admission under my care, no symptoms at any time induced me to consider the liver in the least implicated in the disease. The account, however, which he gave of his previous symptoms,—the pain in the right side, and the difficulty of lying on the left,—induced me to employ for some time a mild form of mercury in moderate doses, combined with the squill. I did not perceive any advantage to arise from this remedy during the period of nearly a month, for which time it was continued; nor did the other remedies which were from time to time added, produce any permanent good effects: and if at any time relief were experienced during the continuance of this plan, it was only when on the 24th of April he took a grain of opium at bed-time; or when active purgatives, more particularly elaterium, produced watery evacuations. The elaterium,

however, distressed him much, and its good effects appeared but temporary. At the expiration of six weeks very little ground had been gained. I then resolved to give a full trial to the supertartrate of potash; and the good effects were almost instantaneous, in increasing the secretion of the kidneys, and in producing absorption of the effused fluid: still, however, the coagulable quality of the urine in a great degree remained, and my impression that the unhealthy and irritated state of the kidneys themselves was probably the great source of the anasarca, led me to adopt the use of the uva ursi and the conium. This was about a fortnight after the supertartrate of potash had been commenced; and although there were some very unequivocal marks of irritation subsisting in the kidneys, all this subsided, and there was no occasion to change the remedy till the cure was apparently complete.

He remained quite well for four months, when being exposed to wet and cold his legs began to swell; and one month after, on the 11th of December, he was again admitted into the hospital. At this time his legs were greatly swollen, hard, and decidedly oedematous. Urine *coagulated strongly by heat*. Pulse 80, of good strength. Resp. 24, with occasional cough, particularly when lying. Since his present illness has had irregular cold shivering fits every two or three nights; denies having any pain either with or without pressure; no palpitation or beating of the heart.

Applicentur Cucurbitulae cruentae Lumbis et detrahatur sanguis ad f̄xiij.
Sumat Infus, Lini lbij quotidie.

12. The cupping performed by mistake across the chest, has relieved the cough a good deal. Urine two pints in fifteen hours; moderately high coloured, with a flocculent sediment.

13th. Urine more clear in colour, three pints in fourteen hours. Two stools from an opening powder; but it made him sick.

14th. Urine almost the same in quantity, scarcely becomes clouded by heat.

Habeat Pulv. ex Jalapa et Potassae Supertartrate mane quotidie si opus fuerit.

15th. Urine rather less; coagulates more. Two stools this morning without sickness or griping. Takes lbij of the infusion of linseed every day.

Adde Sodae Subcarbonatis ʒj Infuso Lini quotidie.

20th. Urine nearly two pints, clear, rendered very slightly turbid by heat. Pulse 84. Bowels opened six or seven times from every powder.

Pulv. Rhei cum Hydrargyri Submuriate gr. xv cras mane.

25th. Swelling increased. Urine one pint, coagulates. Bowels not well opened. Pulse rather sharp.

Mittatur sanguis ad f̄xij. Repetatur Infusum Lini.

26th. Urine one pint; coagulates by heat. Blood firmly coagulated and buffed.

R. Potassae Supertart. ʒss,

Aquae destillatae f̄xx,

Syrup. simpl. f̄ʒj: fiat mistura quotidie sumenda.

Habent Haust. Sennae pro re nata.

27th. Urine about the same in quantity, has a slight cloud in it; coagulates by heat. He did not begin his supertartrate of potash till this morning.

28th. Urine two pints; coagulates less, but becomes cloudy: two stools. Pulse 80, of good strength.

29th. Four tolerably healthy stools passed with a good deal of urine; two pints saved. Pulse 96. He finds the swelling increase towards night.

31st. Urine does not coagulate.

January 1st. The swelling has a tendency to increase. Urine four pints in forty-eight hours; coagulates. Pulse active. Bowels freely open.

Mittatur sanguis ad f̄xx.

Op̄ii gr̄ss bis die. Repetatur Mistura.

2nd. Much relieved in every respect. Urine three pints in sixteen hours; two stools; swelling diminished.

3rd. Urine three pints in sixteen hours; does not coagulate, but becomes rather milky by heat. He passed a good night, feels much more comfortable, and is less swollen. Pulse 72, rather weak. He says he is not at all thirsty, and avoids drinking as much as he can.

4th. Better in all respects. Urine in same quantity; does not coagulate at all.

5th. Pulse 88, moderate. Urine the same; does not coagulate: swellings diminished.

6th. Pulse 88, rather more sharp, but he thinks himself improving; always finds the left leg and thigh swell most. Urine one pint and a half, in the slightest possible degree milky by heat: one stool. He takes daily about one pint and a half of the mixture of supertartrate of potash.

7th. Urine *not in the least degree coagulable*; two pints in sixteen hours; other urine passed with three stools. Pulse 84, rather weak; swelling much diminished, very little oedema remains except in the left leg.—To have a mutton chop.

Continuantur Medicamenta.

At this period of his disease, it appeared as if he were again rapidly approaching to a state of convalescence; but unfortunately, without any obvious cause, his disease took a less

favourable turn; his bowels became disordered; his urine in the course of two or three days became nearly as coagulable as ever: and in spite of a great variety of remedies, he still (April 5th) remains under my care, with all the symptoms of confirmed disorganization of the kidneys: a tendency to anasarca only moderated by the most constant attention, and a scanty flow of urine always decidedly coagulable, but varying a little from day to day.

CASE XVI

MARY FITZGERALD, act. about 30, was admitted under my care into Guy's Hospital, October 4th, 1826. Her usual employment was needle-work, and she had generally enjoyed good health. She considered herself quite well on going to-bed ten days ago, but when she rose on the following morning found her feet much swollen. Since that time the anasarca swelling has extended over her whole body and face: her breath was very short at the time of admission, with frequent dry cough, particularly troublesome when in bed. Pulse 84, sharp: her general appearance bloated and leucophlegmatic. Urine scanty, *coagulating by heat*.

Mittatur sanguis e brachio ad f̄xx.

R. Potassae Supertart. ʒj,

Aquae destillat. ij℥;

Fiat Mistur. quotidie sumenda.—Low diet.

5th. The blood has not separated very completely: the serum is quite transparent: face and legs less swollen; one dejection. Urine about a pint and a half; coagulates slightly, forming a permanent scum at the top when boiled. Cough very troublesome.

6th. Urine increased; swelling gradually subsiding.

9th. Urine copious. Bowels regular; swelling subsiding.

13th. Complains of an acute pain in the left side below the ribs, running backwards, which has now continued for forty-eight hours.

Applicentur Cucurbitulae cruentae parti dolenti, et detrahatur sanguis ad f̄xxij.

Rep. Medicamenta.

16th. Swelling entirely gone. Pulse 80, of good strength. Urine copious. Skin perspirable. Bowels confined.

Pulveris Jalapae cum Potassae Supertartratis ʒss pro re nata.

Repetatur Mistura Potassae Supertartratis.

20th. Completely convalescent.—She went to the Convalescent ward, and was dismissed in a few days.

This was a very recent case of anasarca with albuminous urine. I employed general bleeding in the first instance, and then pursued the simple plan of saline diuretics and purgatives, because I had found such manifest advantage from the same plan in the first attack of this disease which RODERICK had experienced; the plan answered, I confess, beyond my most sanguine expectation.

CASE XVII

FRANCIS FISH, æt. 26, was admitted under my care into Guy's Hospital, October 4th, 1826. He was a stout man, tall and well proportioned, who had been employed as a porter to a broker, and had often been occupied in beating feather-beds on the top of a house; and was consequently much exposed to changes from heat to cold. His general health had always been good; and according to his own account he had been a sober hard-working man, nor did his appearance lead to a contrary opinion.

About a month before his admission he felt feverish with headache; he took some remedy, which he believes was mercurial; was afterwards exposed to the air, and thinks he caught cold by that means. The night after the exposure or the same night he began to swell, and this he first observed in the legs and the scrotum; the swelling went on increasing; and at the time of his admission he was greatly swollen in every part, particularly his thighs and legs; and the cellular tissue of the abdomen was quite filled with fluid, as was that of the scrotum. Pulse 110, rather sharp: bowels relaxed: slight cough. I could not learn the quantity of the urine passed; but what I saw was very high coloured, *coagulating* by exposure to heat more completely than I have almost ever seen; becoming nearly one white curdlike mass. There was nothing either in the countenance or the symptoms which pointed out the least hepatic derangement.

Mittatur sanguis ad f̄x.—Low diet.

5th. Blood neither cupped nor buffed, serum milky. Urine one pint and a quarter, of a turbid yellow sandlike colour. Bowels not open. Pulse 80, of good strength: swelling unaltered.

R. Potassae Supertartratis ʒj,
Aquae purae lbij.

Misce et sumat quotidie pro potu.

6th. Reports that he has passed considerably more urine: one lax stool. Anasarca slightly diminished. Pulse 96, rather sharp.

9th. Urine nine pints in the last forty-eight hours, besides some passed with his stools: four or five relaxed dejections daily. Urine high coloured, clear; coagulates much less, but still becomes milky on exposure to heat. Thighs reduced one inch and a half in circumference, the calf of the leg the

same. Abdomen so much smaller that his waistband nearly meets. Pulse 80, natural.

11th. Urine high coloured: bowels open. He continues to improve.

13th. Very little oedema left in the thighs; legs also diminished. Urine five pints in twenty-four hours, besides what passed with stools; high coloured: scarcely in the slightest degree coagulable by heat. Pulse 80. Bowels costive.

Habeat Pulveris Jalapae cum Potassae Supertart. $\frac{3}{4}$ s statim.

Continuatur Mistura.

16th. Urine diminished, though still copious. Pulse 96. He speaks of a sense of uneasiness, though inconsiderable, in the loins.

Applicentur Cucurb. cruent. regioni Lumborum et detrahatur sanguis ad $\frac{1}{2}$ x.

R. Pulv. Uvae Ursi gr. x,

Sodae Subcarbon. gr. x,

Pulv. Conii gr. ij; fiat pulvis ter die sumendus.

Repetatur Mistura.

20th. No swelling remains except at the ankles and insteps. Urine about four pints in twenty-four hours, high coloured; does not coagulate at all. Bowels rather confined. Perspires a good deal at night; appears weakened.

Repetatur Pulvis purgans et continuantur Medicamenta.—Middle diet.

23rd. Urine red-coloured from slight admixture of blood. Anasarca almost completely gone, very slight about the feet. Skin perspirable. Urine throws up a slight frothy scum on boiling, which remains; four pints in seventeen hours.

Omittatur Pulvis ex Uva Ursi, Soda, et Conio; et Rep. Mistura.

26th. Urine about five pints in twelve hours, rather less red: bowels inclined to be costive.

R. Potass. Supertart. $\frac{3}{4}$ s,

Aquae purae $\frac{1}{2}$ j fiat Mistura quotidie sumenda.

Habeat Infusum Cascarillae cum Tinct. Cascarillae. ter die.

Haust. Sennae mane quotidie.

30th. Pulse natural. Very slight swelling occasionally observed at the ankles. Urine five pints in fourteen hours, brownish. Complains of cough, but looks well.

Linctus Opiatus pro re nata, et Rep.

November 6th. No remains of oedema. Urine very copious, still of a dusky colour, coagulates considerably; three pints in sixteen hours. Pulse 106, compressible. Still some cough.

R. Potass. Supertart. $\frac{3}{4}$ j.

Aquae purae $\frac{1}{2}$ fs fiat Mistura quotidie sumenda.

Applicetur Emplast. Cantharidis Lumbis, et Repetantur alia.

8th. The blister, which was only to be kept on till it rose and then im-

IN DISEASES TERMINATING IN DROPSICAL EFFUSION 47

mediately removed, remained on about ten hours, rose well, and discharged. Urine copious, of a dark colour, coagulable. No stool yesterday: has perspired freely.

Haust. Sennae et Rep.

10th. Has been sick at the stomach. Slight tenderness at the pit of the stomach. Urine high coloured. Pulse quick.

R. Antimonii tartarizati gr. $\frac{1}{4}$,

Opii contriti gr. j,

Theriacae q. s.

Fiat pilula bis quotidie sumenda.

Decoct. Lini pro potu.

Applicetur Cataplasma Lini lumbis.

13th. Complaints of sickness and vomiting every morning between nine and ten o'clock: this does not return during the day, but he sometimes experiences slight nausea. Bowels costive. Urine as before. Tongue moist, rather red. The cataplasma is still applied; but he denies having any internal pain in the loins.

Olei Ricini f̄ss hora somni omni nocte

Pil. Saponis cum Opio ter die.

16th. Much relieved; stomach is nearly well. Urine less brown, but still coagulates.

17th. Urine five pints in fourteen hours. He is still hoarse, and appears to be losing flesh; frequently complains of hunger.

Sulph. Quininae gr. j ter die.

et Rep. Pil. Saponis cum Opio.

20th. Very slight coagulation in the urine.

Rep. Sulph. Quininae et Pil. Saponis cum Opio omni nocte.

24th. Urine four pints in fifteen hours. Pulse 100, moderate. Still coughs a little, but does not seem to suffer from it.

27th. Urine dingy, in sufficient quantity; still shows a slight flocculent coagulum on the application of heat.

Julep. Acidi nitrici f̄ss quotidie.

December 1st. Urine scarcely coagulates at all, still of a reddish colour. He complains of nothing but a frequent desire to pass his water.

3rd. Appears perfectly well. His urine of a natural colour as nearly as possible.—In a few days he left the hospital.

This was a case of anasarca in which there was not the slightest evidence of any internal organ except the kidney being deranged. The origin of the disease was pretty plainly traced to exposure to atmospheric changes; the cure was effected by

a simple and nearly undeviating plan, in which I was led from experience to have placed some confidence. Moderate bleeding and a low diet, with the administration of saline diuretics, increased the daily flow of urine from a pint and a quarter to four pints and a half, before the plan had been five days adopted. The coagulable nature of the urine likewise diminished, and the swelling subsided rapidly. At the end of about ten days more, obvious symptoms of renal irritation showed themselves: which might indeed have arisen from the continuance of the diuretic treatment; but I was induced to view it rather as a natural variation of symptoms, seeing that in a great majority of the cases which I had lately witnessed, hæmaturia was present in a greater or less degree. The blister which was applied on the 6th, under a hope that the external irritation might produce a favourable change in the action of the kidneys, increased the irritation, and the stomach sympathized strongly. This temporary irritation yielded to demulcents and opium. The kidneys were still decidedly deranged in their action; the quantity of urine passed was rather in excess; and the loss of flesh, together with the unusual hunger experienced, gave some room for drawing an analogy between the present state of the disease and *diabetes insipidus*. I thought it probable that in this state of things, tonics combined with opiates might do much; the sulphate of quinine was used with advantage, but afterwards the nitric acid seemed to exert a still better influence.

In two months after his first admission he was so far cured as to have no evidence of disease remaining, and four months have now passed (April) without any recurrence of symptoms. I do not however feel at all sanguine that he will be free from relapse; for I see no reason to doubt that at one period his kidneys were in a condition exactly analogous to that of EVANS, and possibly, as in that case, the white granular deposit had already in some degree taken place.

CASE XVIII

WILLIAM BROOKS, æt. 57, was admitted under my care into Guy's Hospital, October 25th, 1816. He was a sawyer, habitually healthy. About six weeks ago he perceived his ankles swell; and this has gradually increased: the whole

IN DISEASES TERMINATING IN DROPSICAL EFFUSION 49

thighs and scrotum are now oedematous; and this to such an extent, for the last fortnight, that he has been prevented from working. Slight tenderness at the pit of the stomach. Urine reported not very scanty. (Low diet.)

R. Potassae Supertartratis ʒj,
Aquae purae lbij.

Fiat Mistura pro potu.

Sumat Pulveris ex Jalapa et Potass. Supertartrate ʒj statim.

26th. Pulse 48, somewhat labouring; much pain in the forehead, particularly in the right temple; occasional giddiness: lies down well in bed. Urine one pint and a quarter, of a *dingy* colour, but clear; *coagulates by heat*.

27th. Urine much the same; complains of pain in the stomach and bowels: the bowels confined.

R. Ol. Ricini fʒss,
Tinct. Rhei fʒij,
Aquae Menth. pip. fʒvj. M.

Fiat haustus statim sumendus.

29th. Repetatur Mistura pro potu.

30th. The drink disagrees with the stomach. Pulse 58. Urine one pint and a quarter.

Mittatur sanguis ad fʒviii.

R. Liquoris Ammon. Acet. et Aquae Menth. viridis āā fʒvj,
Spirit. Aetheris nitrici fʒss,
Acet. Scillae ℥xx,
Spir. Armoraciae Comp. fʒss.

M. fiat haustus sexta quaque hora sumendus.

Habeat Pulveris Jalap. cum Potass. Supertartrate ʒss.

31st. Coagulum of blood small, not firm: serum turbid. Pulse 60. Urine unaltered; feels somewhat relieved.

November 3rd. Urine two pints and a half; colour more natural; coagulates much less: frequently complains of pain in the head with some noise and confusion. Pulse 72, strong. Bowels confined.

Applicetur Empl. Cantharidis Nuchae.

Habeat Pulver. Jalap. cum Potass. Supertartrate ʒij.

5th. A good deal oppressed, and complains of headache.

Rep. haustus tertia quaque hora.

6th. Still complains of noise in the head and deafness on the left side. Pulse 64, full; anasarca of limbs rather increased. Urine two pints in fourteen hours, clear, and of good colour.

Infus. Spartii scopar. pro potu, et repetantur Medicamenta.

8th. Has taken about one pint and a half of the infusion; considerably relieved; rests better: head less painful. Urine quite clear, three pints in eighteen hours; coagulable, becoming milky by heat.

10th. Urine above four pints, healthy in appearance. Pulse 74, strong. Head much relieved, feels better, but the oedema remains. He mentioned to-day for the first time, that he has occasionally felt palpitation of the heart while at work, and the action of the heart seems to be labouring.

11th. Feels much relieved: takes his medicine every three hours, and from one pint to one pint and a half of the infusion daily. Urine abundant; coagulates less. Bowels regular.

13th. The thighs are reduced five inches in circumference. Urine four pints in sixteen hours, rather dingy.

17th. Continues to take the mixture every three hours, and a pint of the infusion daily: the oedema is subsiding. Urine about three pints and a half; coagulates much less, and is nearly natural in colour.

20th. Complains much of a short cough.

Linctus opiatus cum Vino Ipecacuanhae pro re nata. Repetantur Medicamenta.

24th. By a mistake of the nurse he has been taking a grain of Calomel and half a grain of Opium, night and morning for the last three days; and I now find him completely salivated, although I had stated my resolution of giving him no mercury. He has passed very little urine for the last two days; none during the last night: it coagulates as much as at first. Pulse 96, strong.

Habeat Julepi Acidi nitrici ℥ss cum Tinct. Opii fʒss, pro Gargarismate. Sumat Pulv. Jalap. cum Potassae Supertartrate ʒij statim, et Rep. Medicamenta.

25th. Urine one pint in eighteen hours, coagulates strongly: two or three stools.

27th. He has not resumed the infusion or the mixture. The swelling has not returned; but the urine is scanty and coagulable. Ptyalism subsiding.

Habeat Infusum Spartii scoparii pro potu.

28th. Urine about one pint and a half since last night with ropy sediment. He has only taken the infusion once.

Dec. 1st. Urine less than one pint in twenty-four hours. Pulse 96, small but rather sharp.

Infus. Juniper. cum Potass. Acet. ʒj, et Sp. Armoraciae comp. fʒj, sexta quaque hora.

Fotus Papaveris regioni lumborum.

2nd. Rather improved in appearance and feelings. Urine still very scanty; no swelling of the legs. Fomentation not used.

4th. Urine one pint in sixteen hours. Ptyalism not yet subsided.

5th. Two stools in the night. He was seized suddenly yesterday evening with most violent pain in the loins, which still continues in some degree.

Urine about one pint and a half; coagulates. Cough constant, as from some obstruction about the throat.

Infricetur Liniment. Terebinthinae Lumbis.

Applicetur Emplast. Cantharidis Gutturi.

Olei Ricini f̄ss cum Tinctura Opii ℥vij statim, et Rep. Medicamenta.

6th. Blister not applied, but he feels better.

Rep. Oleum Ricini cum Tinctura Opii, et Medicamenta alia.

Applicetur Emplastrum.

7th. Improved. Urine three quarters of a pint. One stool.

Rep. Ol. Ricini cum Tinctura Opii.

8th. Much improved in general health. Urine three quarters of a pint, and forms a copious flaky coagulum by heat.

Infus. Lini pro potu, et Repetantur alia.

11th. Pulse 80, moderate. He is quite recovered from the effects of the mercury. Urine about one pint and a half, turbid, becomes clear by heat, and does not coagulate. He takes about one pint of linseed tea daily.—(Mutton chop.)

15th. The urine saved, two pints and a half; and nearly an equal quantity is said to have been passed with his dejections: it is clear, and coagulates a little. Very slight oedema may still be discovered about the instep.

Adde Infuso Lini ℥bj, Sodae Subcarbon. ʒss.

Rep. Medicamenta.

18th. In the evening he felt much oppressed in his breathing, and said he almost lost his senses.

Mittatur sanguis ad f̄viiij, et Rep. Medicamenta.

19th. The serum of the blood is turbid, and in large proportion: he felt relieved by the loss of blood. Pulse 72, rather labouring. Urine about two pints and a half, perfectly clear, does not coagulate. Complains of dulness in the head.

Applicentur Cucurb. cruentae inter scapulas, et detrahantur sanguinis f̄xx.

Rep. Medicamenta.

20th. A good deal relieved by cupping. Pulse 84, rather labouring. Urine two pints and a half, quite clear.

Rep. Medicamenta.

21st. Feels better. Pulse 80, less labouring. Urine light-coloured, but not quite clear; not coagulable: two pints saved, more has been passed. Two dejections.

26th. Urine three pints in eighteen hours; *not the least coagulable*. Pulse 80, of good strength: appears quite well.

29th. (Middle diet.)

Jan. 1. Swelling returned a little at the ankles. Pulse 84, rather labouring. Urine three pints in eighteen hours; still does not coagulate. Appetite good, and in all other respects he appears well.

Mittatur sanguis ad f5x.

Omit. Medicamenta, sed Rep. Oleum Ricini pro re nata.

2nd. Let rollers be applied to the legs. Serum of the blood milky.

5th. Urine not the least coagulable, clear, and in sufficient quantity. No complaint.

7th. Urine clear, light-yellow, two pints and a half since last night, not the least coagulable.

This was a case of anasarca with coagulable urine having all its characters well marked. There was no evidence either of hepatic disease or of derangement in the structure of the heart or lungs; but the urine loaded with red particles seemed to bespeak decided renal affection. I attempted in this case to adopt the plan which had proved successful in the two last cases; but the stomach would not bear the quantity of saline fluid, and I was obliged to have recourse to other diuretic combinations, which acted very favourably. It was necessary to pay attention to the bowels; and symptoms of local congestion more particularly in the head, rendered it a matter of security at least to take away blood occasionally. I had purposely abstained from the employment of mercury; and its accidental exhibition was undoubtedly attended by injurious consequences at the time, as will be immediately seen by a comparison of the reports just preceding the 20th of November, with those of the following days. How far it was ultimately beneficial or injurious, is still a matter well worthy of consideration. The fact that this was a successful case, is at least sufficiently important to induce us to hesitate in denying any salutary efficacy to the mercury. Although the improvement had begun in the coagulable quality of the urine before the mercury was taken by mistake, and that morbid state did manifestly increase greatly during the mercurial action; yet when the salivation subsided, his condition did not appear to be worse than it was before, and we find the symptoms yielding rather easily to the different diuretics which were then administered. In this stage of the disease, at the beginning of December, it appeared to me that

he derived great relief from the use of the turpentine liniment rubbed morning and night upon his loins. It was not however till the 11th of December, when the sensible effects of the mercury had subsided, that the quantity of urine began to increase, and its tendency to coagulate gradually to cease.

CASE XIX

ROBERT SPOONER was admitted into Guy's Hospital, under the care of Dr. Back, November 29th, 1826, in a state of general anasarca; he was a stout-looking man, aged 50; and having been employed as a pewterer, was in that occupation a good deal in the habit of being exposed to the heat of fires. A fortnight before his admission he was apparently in perfect health; at that time he first found his legs to swell. After three days he began to take some pills and draughts, which he continued till his admission; and after taking them about eight days he found his mouth become sore; he observed his urine to be dingy and brown in colour about the same time. The quantity of urine has not increased; it is about a pint and a half in twenty-four hours, coagulating by heat. Pulse full.

Mittatur sanguis ad f̄xv̄j.

R. Pulv. Jalapae gr. xx,

Hydrarg. Submuriat. gr. v. statim sumendus.

Habeat Solutionis Potas. Supertartrat. ℥j quotidie.

Pil. Scill. comp. gr. v cum Hydr. Oxyd. ciner. gr. fs, omni nocte.

Nov. 30th. Bleeding relieved him. Urine not increased, but swelling diminished.

December 1. In the afternoon was seized with great dyspnoea, with a full throbbing pulse.

Mittatur sanguis ad f̄xxij.

Sumat Pil. Conii gr. v cum Pulv. Digital. gr. j, quarta quaque hora ex Julepo Oxymellis.

Four hours afterwards, the symptoms being but little relieved and the blood highly buffed,

Repetatur detractio sanguinis ad f̄xv̄j.

2nd. Much relieved by the last bleeding; the blood not buffed. To-day he appears much reduced in strength; breathes with great difficulty; looks pallid. Urine dingy, coagulating by heat.

Pulver. Jalap. cum Hydrarg. ʒj statim.

Rep. Medicamenta.

3rd. Still complains of some difficulty of breathing. Pulse rather sharp. Urine of a lighter colour.

Applicetur Emplast. Cantharidis Sterno.

4th. He seems improved, the swelling being diminished, as well as the difficulty in lying down. The urine rather more copious; still dingy; coagulates by heat, rising from the sides of the spoon in dense clouds. Pulse quick, and rather sharp.

5th. Urine of a florid blood colour. His countenance is pallid, and his face puffy.

Repetantur Pulv. purgans, et Medicamenta alia.

8th. The oedema still remains, both in the face and the legs, and slightly in the hands. Pulse full and frequent; he feels, however, generally improved; passes more urine, and is less swollen.

9th. Urine more scanty than for three or four days; about thirteen ounces in twenty-four hours; reddish brown, from the admixture of red particles, some of which gradually subside to the bottom of the vessel; coagulates into a completely curdled fluid by heat. Complaints of no pain.

Sumat Pulv. Jalap. cum Calomel. gr. xv quotidie mane.

Misturæ Potas. Supertartrat. ℥ij quotidie.

Pil. Scillæ cum Hydrarg. omni nocte.

12th. Urine about a pint and a half in twenty-four hours, very highly charged with red particles. He complains of a sense of load and oppression about the pit of the stomach. Pulse rather full and sharp, swelling much diminished. He has no pain on pressure of any part.

Mittatur sanguis ad f̄xij.

14th. Swelling much diminished. Blood not buffed. Urine still dark coloured. Altogether greatly relieved, but complains of his mouth being sore.

15th. Much reduced in size. Urine of a dark red, very coagulable.

16th. Mouth very sore.

Perstet in usu Misturæ; Habeat Pulv. Jalap. cum Potassæ Supertart.

℥ij mane quotidie, et Pilul. Scillæ comp. gr. xij cum Opī gr. j, omni nocte.

17th. Swelling much reduced. Pulse sharp.

25th. Mouth nearly well; swelling much subsided. Urine still very coagulable and dingy.

January 3rd. In all respects improved, passes a good quantity of urine; now scarcely dingy in its colour, and coagulating very slightly. Countenance still pallid and swollen. Pulse a little sharp.

7th. Urine nearly clear, of a slightly pink cast from a few red particles; scarcely coagulates, becoming rather milky by heat.

13th. Decidedly improving from day to day.

22nd. Urine of a dingy colour, coagulating slightly by heat; he appears nearly free from complaint.

February 7th. Left the Hospital nearly well: still however the legs were slightly oedematous, pitting on pressure, particularly along the shin bones. Urine in natural quantity, pale, of a dingy colour; having by no means the natural bright appearance. Pulse 96, sharp.

In this case the disease of which I have been speaking was marked by all its symptoms, and there can be no doubt that the inflammatory tendency, which is so strong a feature in the complaint, would have proved destructive, but for the active depletion which was put in force. Whether we are to ascribe the improvement which took place, both in the quantity and the quality of the urine, to the mercurial action induced, or to the continued exhibition of saline diuretics, it is no easy matter to decide.

CASE XX

WILLIAM TODD, aet. 28, a printer, was admitted into the Clinical ward of Guy's Hospital November 15th, 1826, under the care of Dr. Cholmeley, labouring under anasarca with some effusion into the abdomen. He stated that he had been out of employment for the last six months, and had been subjected to many privations both of food and clothing; for about a month had suffered from a cold, and for a fortnight past had found his legs and ankles swell without any pain; the swelling gradually became worse, and the week before his admission he observed his abdomen to swell towards the evening, and when he rose in the morning his head and face were swollen; at the same time a cough and difficulty of breathing, particularly on walking up stairs, came on, and tightness at the pit of the stomach. He complains of thirst, but has always had a good appetite: he makes but little urine, which is high coloured. Bowels regular. Pulse 72, small. Tongue natural. He says that he has never been in the habit of drinking either spirits or porter. The urine in this case was very scanty, and coagulated so as to look almost like water-gruel by exposure to heat. He was cupped at the pit of the stomach, and put upon the frequent use of the extract of elaterium, with the effect of purging him very freely. He took a combination of squills, mercury and opium, every night; he occasionally had recourse to combinations of jalap and gamboge, and various other purgatives. He took the infusion of juniper-berries for drink, and sometimes small doses of digitalis in the form of powder or of tincture. Under this treatment at first the urine increased, and shortly even exceeded the natural quantity; but it became of a dark coffee colour, frequently depositing a considerable brown sediment.

December 8th. Leeches applied to his temples. On the 12th eight ounces of blood were taken by cupping from the neck, and on the 14th the same quantity from the arm. The progress made was very slow, and from the first he constantly complained of severe headache. At the beginning of January his mouth had become completely affected by mercury, given in the form of calomel combined with conium and opium.

January 2nd. Feels very unwell, complains much of headache; his mouth is sore, the glands of the neck swollen; the countenance pallid; his ankles

swell towards evening. Urine very high coloured, with a copious brown sediment. Pulse 102, with considerable action. He is thirsty.

Habeat Julep. Potassae Acetat. ter die.

Omit. Hydr. Submuriat.

3rd. Mouth and gums very sore; cheeks swollen. Headache; bowels inclined to be costive. Pulse 96, soft.

Infus. Rosae cum Magnes. Sulphat. ter die.

R. Extr. Hyoscyami gr. v,

Pulveris Ipecac. gr. j;

Fiant Pilulae ij ter quotidie sumendae.

4th. Face swollen; mouth sore. Pulse 116: one scanty dejection. Urine very dark, with coffee ground sediment.

Applicetur Emplastrum Cantharidis Nuchae.

Gargar. Argenti Nitratis.

Rep. Medicamenta.

5th. No dejection. Face swollen; mouth very sore. Urine the same: much headache.

Olei Ricini f5j statim.

6th. Much salivation; four or five dejections.

7th. Face continues swollen. Mouth very sore. No dejection; skin hot. Urine less turbid.

Sumat Spir. Aether. nitr. ℥xxx, ex Julepo Ammoniac Acetat. sexta quaque hora.

Pulver. Ipecacuanhae comp. gr. x omni nocte.

Gargar. Acidi nitrici.

Pulv. Jalap. comp. 3j statim.

9th. Pulse very quick; looks pale. Urine still has a thick brown deposit; two bilious dejections; spits very much. Legs do not swell; face still swollen.

R. Decoct. Uvae Ursi,

Infus. Rosae, āā, f5j;

Misce, fiat haustus ter die sumendus.

Pulver. Jalap. comp. 3j, alternis auroris.

16th. The flow of saliva diminished, but he cannot yet put out his tongue. One pale dejection. Urine lighter coloured, increased in quantity. Pulse 90, with considerable action; gets no sleep at night. He continued this form of medicine, with occasional purgatives, till the 24th, with little alteration; the urine being always dingy, and the face inclined to swell. He was then put upon the use of small doses of nitric acid; leeches were applied two or three times to his temples with the effect of relieving the headache, and at the same time the combination of compound extract of colocynth with a grain of ipecacuanha, was given two or three times a day, to keep up a regular action on the bowels.

February 9th. Feels rather better: bowels open. Tongue whitish. Pulse 90, sharp. Urine six pints in the twenty-four hours, clear and without sediment. As there had been manifest deficiency in the secretion of the skin, the warm bath was tried two or three times, but it increased the tendency to headache.

19th. Much headache. Tongue rather white, but moist. Pulse 106, sharp; one dejection, deficient in bile. Urine about five pints, lighter in colour.

Pil. Hydrarg. gr. v omni nocte, et Rep. Medicamenta.

24th. The legs still swell towards night; the face a little swollen. Urine with slight deposit. One copious dejection.

R. Pulv. Conii gr. iij,
 — Uvac Ursi ʒj, ter die.
 Omitt. Pilul. Hydrarg.

The exact period at which the urine ceased to be coagulable, I cannot with certainty mention, but about this time the fact was observed; and while continuing the use of this form of remedy, a seton having also been inserted into his neck, and a mixture with the balsam of Peru added to his other medicines, he gradually became better. On the 9th of March he was cupped between the shoulders to twelve ounces, and on the 15th lost the same quantity of blood by cupping from the loins.

March 29th. Urine of good colour, quite clear, without any deposit. He feels tolerably well: one scanty clay-coloured dejection; no swelling of the legs.

30th. Two darker coloured figured dejections; feels pretty well: appetite indifferent. Urine copious, of good colour.

April 4th. He left the Clinical ward, and was sent in a comparatively healthy state into another ward, but still complained much of headache, and his countenance was pallid. His urine apparently natural in all respects.

12th. At this time he is apparently free from complaint, except a slight occasional headache and a little tendency to quickness of pulse. He remains in the Hospital only because the seton in his neck is troublesome.

CASE XXI

ELIZA PLUME, a single woman aet. 18, was admitted into the Clinical ward of Guy's Hospital, January 18th, 1827, affected with anasarca, more particularly showing itself in the legs, but likewise in the arms and face. She had at the same time some swelling of the abdomen, and a troublesome hard cough. Pulse sharp. Tongue whitish. Bowels natural. Urine in tolerable quantity. She had never menstruated. It appears that her complaint first came on after exposure to cold and wet, about four months previously to her admission, the swelling beginning in the feet and legs, and gradually extending.

Applicentur Cucurbitulae cruentae Scrobiculo Cordis, et detrahatur sanguis ad f̄xlv.

R. Pilul. Scillae comp. gr. iv,
 Hydrarg. Oxyd. cinerei gr. fs,
 Pulver. fol. Digitalis gr. j,
 Extracti Conii gr. iv.

Contunde ut fiant pilulae ter quotidie sumendae.

Habeat Mistur. Camphorae, cum Liquore Ammoniac Acetat. singul.
 dosib. pilularum.

She continued the use of these medicines, with the addition of ten drops of the tincture of digitalis to each dose of the mixture and half a grain of opium at bed-time, till the 5th of February. It was not till after she had been ten days in the Hospital that any examination was made of her urine: it was then found to be moderate in quantity, dingy in colour, and coagulable by the application of heat. On the whole, amendment took place under this plan of treatment; slight changes occurred, and on one occasion the urine was observed not to coagulate by heat. Once or twice moderate bleedings were had recourse to when the pulse was sharp. After the 5th of February the mercury was discontinued. About this time the urine did not coagulate, and was increased to four pints in twenty-four hours. On the 17th of February the urine still coagulated decidedly by heat.

R. Pulveris Conii gr. iij,
 Pulveris Uvae Ursi ʒj.

Fiat pulvis ter die sumendus.

February 27th. Feels much the same. Urine less copious, rather lighter coloured. Tongue white as usual. Pulse 100. Bowels open.

R. Liquor. Antimonii tartarizat. fʒj, sexta quaque hora, ex Julepo Menthae.

28th. Eyes nearly concealed by oedema of the eyelids. Pulse 88, rather sharp; perspires pretty freely.

March 5th. The tartarized antimony occasionally makes her sick.

Infricetur Linimentum Terebinth. abdomini, et Rep. Medicamenta.

7th. Admoveatur Emplast. Picis Burgund. lumbis.

12th. Legs somewhat oedematous; right arm very much so. Pulse 96, sharp. Urine in quantity as usual, coagulates by heat and becomes like almond emulsion. The skin not generally perspirable.

Mist. Balsam. Peruvian. quarta quaque hora.
 Continuatur Linimentum.

14th. Rather more swelling about the legs and abdomen.

Applicentur Cucurb. cruent. regioni Lumbor. et detrahantur sanguinis fʒxij.

15th. Limbs much less swollen; feels more comfortable. One liquid dejection. Urine unaltered.

26th. Right arm nearly returned to its natural size.

Pilul. Aloes cum Myrrh. gr. x, omni nocte.

27th. Increased flow of tears with oedema of eyelids; face also a little swollen.

Applicentur Cucurb. cruentae nuchae, et detrahatur sanguis ad f5xiv.

R. Infus. Sennae f5ifs,

Potas. Tartar. ʒij.

Fiat Haustus semel vel bis quotidie sumendus.

28th. Some relief from the cupping. Eyelids much more comfortable, but still oedematous. Three dejections.

R. Pil. Scillae Comp. gr. x.

Extracti Hyoseyam. gr. iv, omni nocte.

Repetatur Haustus.

29th. All oedema gone from the eyelids. Urine in usual quantity. Pulse 104. Bowels open;—feels better.

April 4th. Legs still a little swollen. Bowels open; and she feels comfortable.

Misturae Potas. Supertart. lbjfs, quotidie,

Rep. Pilul. omni nocte.

14th. Feels comfortably, and continues to pass a tolerably natural quantity of urine; it is of a light whey-colour, but slightly dingy; becomes milky on the application of heat, and forms a great quantity of white flakes. Legs still swollen, and rather hard; her face has a tendency to swell, and her pulse is quick.

This case still remains under treatment, and I mention it chiefly as being one of those to which Dr. Bostock has referred in his Observations on the State of the Urine. The disease had already existed four months before her admission; and although the symptoms of anasarca have always been mild, they have not yielded in a satisfactory manner. She is indeed greatly improved; but as long as the urine remains in so morbid a condition, we cannot but feel the daily probability of relapse. It is not unlikely that could the flow of the catamenia be regularly established, this might have a favourable effect in the disease.

CASE XXII

In the month of February in the present year, when I was speaking to one of the physicians' pupils to the Hospital on the subject of albuminous urine, and was wishing to show the difference between the action of heat on this and on healthy urine, I requested him to bring me a specimen of the ordinary fluid from any of the patients around.—To my surprise the specimen he brought

coagulated most decidedly by heat. This led me immediately to examine the patient: he was a boy of the name of HOBSON, about 14 years of age, who had been for three years the subject of a most manifest enlargement of the liver, the bulk of which now distended his abdomen; and its margin was distinctly to be felt below the umbilicus, and extending far towards the left side. His general aspect was pallid and unhealthy, and there was evidence of some chronic disease of the heart, the origin of which could be traced to rheumatism, of which he had experienced a very severe and protracted attack when ten years of age. On questioning him more particularly, it appeared that he had formerly, when a patient in another Hospital, passed blood in his urine, and had experienced some pain occasionally in his loins. The urine was now perfectly clear, and rather light coloured, but nothing could be more marked than its property of coagulating. I did not hesitate to predict that we should find some obvious organic change in the kidney, connected with this morbid condition of its secretion. Towards the middle of March he had rheumatic swellings in the joints; the urine became very dingy, apparently from the admixture of red particles; and a short time afterwards, symptoms of inflammation of the heart and of the pleura came on,—and he died. As I could not be present at the examination, I requested most particularly that the kidneys, the heart, and a part of the liver might be preserved for my inspection; which was done: so that I was enabled to have excellent drawings made of them all;—and I am obliged to Dr. Hodgkin for the following particular account of the appearances.

SECTIO CADAVERIS.—March 25th.

‘The body exhibited no signs of puberty. The head was not opened. The pleura on the right side was adherent, especially laterally and towards the lower part, by means of a false membrane of rather recent date; it was soft and rather bloody, with somewhat of a honeycomb appearance. At the upper part and between the lobes the inflammation appeared to have been still more recent. There was some bloody serous effusion, but nothing puriform. The adhesions on the left were equally general, but much slighter; on this side also they seemed to have been of different ages. The substance of the lungs was free from adventitious deposit, was not more bloody than usual, and if a little too firm in some parts, the cells were somewhat dilated in others. The heart was a little enlarged; there was very little serous effusion into the pericardium, but both of the secreting surfaces of this membrane were doubled by an adventitious

layer of about the thickness of an old shilling, having considerable firmness, and a very remarkable hirsute or scabrous surface, somewhat like that of an ox tongue. There were besides bridles of adhesion of about an inch in length, but slender and scabrous. The valves were healthy, and the parietes of their natural thickness. There was a small quantity of straw-coloured clear serum in the peritoneal cavity, and some traces of recent inflammation on the convex surface of the liver, and old adhesion between the omentum, liver, and spleen. The omentum was contracted and drawn upwards. There was nothing remarkable in the mucous membrane of the stomach or of the greater part of the upper portion of the small intestines; but that of the ilium, though free from ulceration or follicular disease, was minutely injected and of a purple colour, and was readily separated from the subjacent coats. That of the colon was nearly in the same state. The surface of the liver was generally smooth, but there were one or two unusual depressions in it. This organ was so large as nearly to reach to the crista of the ilium, and to the left it extended even beyond the spleen, which it overhung. About where the left lobe usually terminates there was a pretty deep notch, beyond which the substance of the liver was continued by a portion equal in size to the left lobe in its ordinary state. The liver was of a light yellowish colour throughout. The posterior part was firm and almost cartilaginous, having a peculiar translucency, and an unnatural uniformity of structure with little or no appearance of acini. In the neighbourhood of the indurated parts the acini were small, but in the greater part of the liver they were much enlarged; and though themselves indurated, were but feebly connected together. The gall-bladder was pretty full of light-green bile. The spleen was about three times its usual size, but of pretty healthy structure. The pancreas was large, white, firm, or even hard. The KIDNEYS were complete specimens of a white mottling degeneration. The deposit which chiefly affected the cortical part, was collected in large granulations.'—To this minute statement of the dissection, I may add, that this kidney approached a good deal in external appearance to that

of SALLAWAY (Case III); but on minute inspection it was obvious that the whole was strewed with, or even composed of opaque yellow bodies: and on macerating the kidney for a few days, this became still more evident,—so that the appearance of the macerated kidney differed very little from that of RICHARDSON (Case VI), in which case the granulated condition was remarkably illustrated.

CASE XXIII

WILLIAM HUNTER, æt. 47, was admitted into Guy's Hospital March 7, 1827, labouring under general anasarcaous swelling. On the 14th my attention was first drawn to him when he was greatly swollen, more particularly his legs, and lay with difficulty on his left side. His face was puffy and pallid, his urine scanty, very dingy in colour and *coagulable* by heat. By trade he was a tailor; and although he said that he had always been temperate, and had indeed refrained from drinking because he had observed for the last two years that his water was often very scanty, and therefore feared some bad consequence from drinking much, yet he acknowledged that he had frequently taken a pot of porter and two or three glasses of rum in a day, and that occasionally he took gin instead of rum, with a view of promoting the flow of urine. He said he had occasionally experienced pain in his loins, and his bowels were habitually costive, but he had never observed any thing peculiar in his evacuations, nor had he ever been in the least jaundiced. He was first taken ill two days after Christmas, having been in difficulties in his business about that time and exposed much to wet. The first symptom he observed was the swelling of his legs, which increased so much that he was unable to walk or bend his knees; his hands, and more particularly his left hand, swelled very much.—He had taken medicine before his admission, and said that for about a fortnight his gums were rendered sore by the medicine he took;—he had derived no benefit from the treatment adopted.—When he came into the Hospital, it was understood that he had suffered from a fit, which had left one side much weaker than the other; and after he had been in the house about three weeks he had two fits somewhat of an epileptic character, which greatly impaired his mental powers. Blisters being applied between his shoulders, and a seton inserted in his neck, his reason returned after some days. The chief remedies employed with a view to his dropsical affection were mercurials, the action of which was maintained till his death. The swelling was decidedly reduced, and the urine for the few last days of his life was so little coagulable, that nothing of the kind was traced except in the frothy scum which was produced by boiling and remained after cooling; but he seemed to decline under the influence of mercury, and died on the 20th of April.

SECTIO CADAVERIS.—April 21st, 1827.

In the cavity of the chest a very considerable quantity of serum was effused,—at least four or five pints, of a light straw colour. The right lung adhered by rather long and not very recent adhesions to the pleura costalis. On the surface of the upper lobe several puckered parts were observed, beneath which, in one or two parts a gritty earthy deposit was found. In the lower lobe an abscess had formed with defined parietes, as from a single suppurating tubercle; yet the pus which it contained was of a greener colour than generally seen in tubercles, and in other respects seemed to differ from it. The whole substance of the lung was compressed by the effused fluid. The left lung was attached by slighter adhesions to the pleura costalis; in its substance not diseased, but in some parts considerably compressed by the fluid in the cavity, in other parts very oedematous. The heart firm in its structure; the left ventricle particularly thick and firm, and the columnae carnae thick and hard. The valves perfectly healthy. The aorta large. The quantity of serum in the pericardium was not precisely ascertained, owing to its making its escape; but there was evidently more than natural; the cellular substance towards the apex of the heart was filled with oedematous effusion, and the whole of both portions of the pericardium covered with a thin coating of coagulable matter, forming a villous membrane easily detached. The liver in its first appearance healthy, except from some part of the peritoneum being thickened by old inflammation: on narrow inspection it became obvious that the whole organ was composed of acini rather larger and more pale than natural, held together by the red connecting substance. The gall-bladder was moderately full of a very imperfect bile, of a turbid orange or saffron colour. The intestines appeared healthy; the bladder was full of urine of a light straw colour, which did not coagulate by heat; but when boiled in a spoon formed a permanent scum upon the surface. The KIDNEYS were both of them decidedly diseased, the whole cortical part presenting the granulated structure of which I have so often

spoken; it was by no means in its most advanced state. The kidneys were of a natural size, rather flaccid, but tough to the feel, the granulated texture was not strongly, yet quite distinctly, marked on their surface. In the pelvis of the right kidney, which was considerably the smaller of the two, a great number, not less than a couple of hundred of exceedingly minute calculi like millet seeds, of a yellow colour, were found. The brain was unusually free from vascularity, looking externally blanched, and this appearance was very remarkable at the base. The ventricles rather distended with fluid; and the membrane lining the ventricles, more particularly the right, was rendered rough by very minute villi, as from some process of inflammation, not unlike what occurs on the pericardium.

In this case we again observe an illustration of many circumstances attending anasarca with coagulable urine:—the slight derangement of the liver, the marked disease of the kidneys, and the tendency to insidious inflammatory affection of the serous membranes, betrayed not only in the pericardium but in the lining membrane of the ventricles of the brain.

CASE XV

(Continued from page 44.)

January 9th. Awoke last night about 12 o'clock with vomiting and purging, but it subsided in a few hours.

10th. The same attack returned during the last night, and the purging continues. Urine much diminished, coagulating strongly.

Omit. Mist. Potassae Supertart.

Sumat Pulveris Opii grs bis die, et

Confect. Opiat. gr. vj ex Mist. Camphor. sexta quaque hora.

12th. Much purged yesterday, but more quiet to-day. Pulse weak, swelling considerably diminished. Urine high coloured and yellow, very coagulable.

In the further progress of this case several changes were made in the remedies employed. On the 29th he was bled, on account of an increased sharpness observable in the pulse, though he always denied having any local pain; the blood was highly cupped and buffed; he felt somewhat relieved, but no alteration was made in the quantity or quality of the urine. The nausea which he often experienced, suggested to me the probability that relief would be derived from a free evacuation of the stomach, and accordingly he

took emetics two or three days in succession, but with no particular relief. The *Ura Ursi* proved equally inefficacious. I again returned to the use of the mixture of supertartrate of potash, and the soap and opium pill twice a day; and under these remedies about the first week of February the urine again lost in some degree its coagulable property, and there appeared to be some improvement in his symptoms generally:—but this change, like the rest, was only for a time.

February 14th. One stool. Urine about one pint and a half; still coagulates.

Habeat Infusi Spartii scoparii lbjss quotidie

R. Oxy mellis Scillae f̄ij,

Potassae Supertartrat. contritae ʒiij.

Misce sumat Cuchl. min. ij pro re nata.

16th. Urine about two pints, coagulates. Three stools. Pulse 76, soft and natural.

17th. Urine not increased; coagulates. Swelling remains nearly the same, feels comfortable because the bowels are freely open.

Addē Acidi nitrici f̄jss ad lbij Infusi Spartii.

Extracti Conii gr. v, quarta quaque hora.

Rep. Electuarium Scillae.

22nd. Pulse 96, rather sharp. Swelling increased. Three or four stools.

25th. Pulse 84. Swelling increases. Urine as before; coagulates.

Applicentur Cucurbitulae cruentae Lumbis, et detrahatur sanguis ad f̄xij.

26th. The swelling increases. Urine as before; coagulates. Pulse 84.

R. Potassae Supertart. ʒss,

Aquae purae f̄xx. M. sit pro potu.

Rep. Electuarium Scillae.

Infricetur Linimentum Terebinthinae abdomini nocte manequē.

This form of medicine with the addition of a little of the balsam of Peru was continued for above three weeks, and at first appeared attended with some abatement of the swelling and improvement in the condition of the urine;—there was however no material change. He continued anasarcaous to a high degree, and seemed to be losing ground in general health; and I at length determined to induce mercurial action on the system; for which purpose I ordered a few grains of the gray oxide of mercury to be given every night combined with squills on the 19th of March, and this was continued till the 30th; when no effect being produced, I ordered a drachm of the mercurial ointment to be rubbed-in every night. This was continued for three nights; when his mouth becoming sore, a scruple was rubbed-in every other night. I continued at the same time the occasional use of saline and other purgatives. The mercury was altogether relinquished on the 10th. The effect was to reduce the swelling; but not in any considerable degree to increase the flow of urine,—for a short time it seemed to become less coagulable, but after

a time was more coagulable than ever. His strength now began evidently to fail: he sometimes complained of shortness of breath and cough, but even within five days of his death was able to lie flat on either side without coughing. He sunk gradually, and died on the 30th of April.

SECTIO CADAVERIS.—April 30th, 1827.

The cavity of the chest contained a pint or two of clear serum: but the lungs were very healthy, and did not appear even to be compressed by the fluid; they were somewhat oedematous. The pericardium contained about four ounces of limpid serum; the whole of its surface, both that attached to the heart and the loose portion, was completely covered with a rough coating of fibrin, in some parts assuming a completely honeycomb appearance, in others formed into projecting points, in others into raised ridges and lines. In some parts the coating was pretty firmly attached, in others it was easily removed by the back of the scalpel; there were no adhesions between the two surfaces of the pericardium. The heart itself was rather large, the valvular structure perfect. The internal lining of the aorta had several patches of incipient ossification. The liver was perfectly healthy, rather soft in its texture. The gall-bladder rather distended with bile, diluted by the mucus of the gall-bladder, and containing four or five biliary calculi from the size of a very small chestnut to that of a pea. The stomach had its internal surface covered with vessels of a brownish colour; in other respects healthy. The duodenum was rough, with enlarged mucous follicles. The small intestines in several parts showed marks of turgescence, and the edges of the valvulae conniventes in some parts were rough, with an appearance somewhat resembling abrasion of the surface, to which the faeces had communicated a stain. The colon healthy. The pancreas and spleen healthy, but the latter rather firm and fleshy. The KIDNEYS were the seat of very decided disease. The right was small and misshapen, with projecting parts of a lighter colour: its tunic thickened very much, and so firmly attached that it was with great difficulty the kidney could be separated from the surrounding fatty matter. The left kidney was large, completely

disorganized throughout: it had not much of the granulated appearance, but was of one light yellow colour throughout, with some spots of more opake yellow, differing very little in appearance from the kidney of HUGH THOMAS (Case V).

The former part of this case was printed off as it at present stands (p. 38 to 44), before any such alarming change had taken place in the condition of this patient as to threaten a speedy dissolution; and the fatal conclusion, with the appearances presented after death, too plainly point out the correctness of the views I had entertained, and confirm in my mind the position which I have been trying to establish. We have in this case likewise another instance of the proneness of the serous membranes under such circumstances to run into a state of inflammation, and a fresh warning of the difficulty with which the inflammation of the pericardium is discovered; for except from the appearance of the inflamed surface, I am totally at a loss to say at what period the pericardium in this case became inflamed. He always denied most positively any pain; he used to assert day after day that he had none; for, being well aware of the risk of inflammation, I was never unmindful of it. Till within the last ten days he never complained of cough or shortness of breath; and probably this was the time when the more recent inflammation came on, though I was inclined to consider these symptoms rather the result of effusion taking place into the cavities, than of any inflammatory process.

SOME GENERAL REMARKS ON THE FOREGOING CASES

FROM the observations which I have made, I have been led to believe that there may be several forms of disease to which the kidney becomes liable in the progress of dropsical affection: I have even thought that the organic derangements which have already presented themselves to my notice, will authorise the establishment of three varieties, if not of three completely separate forms, of diseased structure, generally attended by a decidedly albuminous character of the urine.—In the *first*, a state of degeneracy seems to exist, which from its appearance

might be regarded as marking little more than simple debility of the organ. In this case the kidney loses its usual firmness, becomes of a yellow mottled appearance externally; and when a section is made, nearly the same yellow colour slightly tinged with gray is seen to pervade the whole of the cortical part, and the tubular portions are of a lighter colour than natural. The size of the kidney is not materially altered, nor is there any obvious morbid deposit to be discovered. (Plate II, Fig. 4.) This state of the organ is sometimes connected with a cachectic condition of body, attended with chronic disease, where no dropsical effusion has taken place either into the cellular membrane or into the cavities of the body; I have found it in a case of diarrhoea and phthisis, and in a case of ovarian tumour. In the former it was connected with slight and almost doubtful coagulation of the urine by heat; in the latter I had omitted to examine the state of the urine. I also met with nearly the same condition of the kidney, with some opake yellow deposits interspersed through the structure, in the case of a man who died exhausted with diarrhoea brought on by hardships and intemperance, and in whose case the secretion of urine was very deficient, but whether coagulable or not I had no opportunity of ascertaining. When this disease has gone to its utmost, it has appeared to terminate by producing a more decided alteration in the structure; some portions becoming consolidated, so as to admit of very partial circulation; in which state the surface has assumed a somewhat tuberculated appearance, the gentle projections of which were paler than the rest, and scarcely received any of the injection which was thrown in by the arteries. (Plate II, Fig. 1, 2, and 3.) In this more advanced stage, if it be the same disease, dropsy has existed, and the urine has been coagulable (SALLAWAY, Case III).

The *second* form of diseased kidney is one in which the whole cortical part is converted into a granulated texture, and where there appears to be a copious morbid interstitial deposit of an opake white substance. This in its earliest stage produces externally, when the tunic is taken off, only an increase of the natural fine mottled appearance given by the healthy structure

of the kidney; or under particular circumstances, gives the appearance of fine grains of sand sprinkled more abundantly on some parts than others. (Plate V, Fig. 3.) On making a longitudinal section, a slight appearance of the same kind is discovered internally, and the kidney is generally rather deficient in its natural firmness. After the disease has continued for some time, the deposited matter becomes more abundant, and is seen in innumerable specks of no definite form thickly strewed on the surface; and on cutting into the kidney these specks are found distributed in a more or less regular manner throughout the whole cortical substance, no longer presenting a doubtful appearance, but most manifest to the eye without any preparation (Plate III, Fig. 3); and other cases less advanced, requiring maceration in simple spring water for a few days to render them more obvious. (Plate IV, Fig. 3.) When this disease has gone on for a very considerable time, the granulated texture begins to show itself externally, in frequent slight uneven projections on the surface of the kidney; so that the morbid state is readily perceived even before the tunic is removed. The kidney is generally rather larger than natural; sometimes it is increased very much, but at other times it is little above the natural dimensions (Plate I). Occasionally I have seen (HOBSON, p. 59) the kidney assume a good deal of the tuberos appearance observed in the advanced stage of the first disease, as shown in the representation of SALLAWAY'S kidney (Plate II): but then it has been manifest even by simple inspection, but much more so after maceration, that the whole is made up of small opaque deposits. It is evident from the case of HOBSON, that this state of kidney attended also with highly coagulable urine may exist without any marked appearance of anasarca.

The *third* form of disease is where the kidney is quite rough and scabrous to the touch externally, and is seen to rise in numerous projections not much exceeding a large pin's head, yellow, red, and purplish. The form of the kidney is often inclined to be lobulated, the feel is hard, and on making an incision the texture is found approaching to semicartilaginous firmness, giving great resistance to the knife. The tubular portions

are observed to be drawn near to the surface of the kidney: it appears in short like a contraction of every part of the organ, with less interstitial deposit than in the last variety. This form of disease existed in a case from which I had a drawing executed about three years ago, it also existed in BONHAM (p. 22); and a most decidedly marked instance of it may be found in STEWART (Plate III, Fig. 1 and 2), where however the kidney was of a lighter colour than in the other cases, which were more of a purplish gray tinge. I believe the case of SMITH (p. 24) belonged to the same. In most of these cases the urine has been highly coagulable by heat, at times forming a large curdled deposit, though in one case (CASTLES) where an approach to this appearance was found on the outside of the kidney, but with marked structural change in the liver, and with confirmed bronchial congestion, only a dense bran-like deposit of a brown colour was produced by the application of heat.

Although I hazard a conjecture as to the existence of these three different forms of disease, I am by no means confident of the correctness of this view. On the contrary it may be that the first form of *degeneracy* to which I refer never goes much beyond the first stage; and that all the other cases, including SALLAWAY, together with the second series, and the third, are to be considered only as modifications, and more or less advanced states of one and the same disease.

I have sometimes felt doubtful whether the cases of PEACOCK and THOMAS (Plate III, Fig. 3 and 4) were to be viewed as the more early stages of the decidedly granulated kidney, (KING, BEAVER, and RICHARDSON,) or whether the opaque flaky deposit which they exhibited in their structure might be considered altogether another form of disease. I think however, from the appearance, that the former is probably the case; and although KING dated his disease from a less remote period than either PEACOCK or THOMAS, yet there is no reason that the disease should not have made either a more insidious, or a more rapid progress, in his case than in that of the others.

Besides these three forms of disease, passing almost into each other and usually attended with decidedly coagulable urine,

there are two other deranged conditions of the kidneys in which the coagulation is sometimes observable, but in a very subordinate degree, and often though observable on one day is quite lost on another. One of these morbid states consists in a preternatural softness of the organ; the other in the blocking up of the tubular structure by small portions of a white deposit bearing the appearance of small concretions. In the former a corresponding loss of firmness has been observed in the structure of the liver, and the spleen and the parietes of the heart, the action of which organ had been observed during life to be deficient in force. In the other cases, besides the obstructed state of the uriniferous tubes, the whole structure of the kidney has been somewhat deranged, the cortical portion firmer than natural, and the tubular part has lost the regular convergency of the vessels, so that they have assumed a waved direction.—It is by no means improbable that we shall hereafter find many other sources of renal irritation to be connected with an analogous state of the urine.

OBSERVATIONS ON THE TREATMENT

IN the foregoing statements it has been my great object to establish the fact, that certain dropsical affections depend more on the derangement of the kidneys themselves than has generally been supposed; and that the albuminous nature of the urine frequently points out the particular cases in which these organs are the seat of disease. I wish that I were now able to add any thing completely satisfactory to myself with regard to the mode of treating these diseases of the kidney. It will be very obvious from a review of the cases I have cited, that they sometimes present difficulties so formidable as to defy the ordinary means of cure; indeed I am inclined to doubt whether it be possible, after the decided organic change has taken a firm hold on the kidney, to effect a cure, or even to give such relief as may enable the patient to pursue for a few years the occupations of life; where, however, the mischief is less rooted, we may undoubtedly do much. In the treatment of the disease, as it occurs in sudden attacks of anasarca from intemperance and

exposure, in its early stages, and before organic changes have taken place, we have two distinct indications to fulfil;—we have to restore the healthy action of the kidney, and we have to guard continually against those dangerous secondary consequences which may destroy the patient at any period of the disease.

The two great sources of casual danger will be found in inflammatory affections, more particularly of the serous, sometimes of the mucous membranes, and in the effusion of blood or serum into the brain, and the consequent occurrence of apoplexy. Of these secondary or casual dangers we have illustrative examples in many of the cases which have been stated above. Out of seventeen dissections, we have found ten or eleven betraying inflammation of the pleura, generally old, but sometimes of more recent date. We have found three instances in which the patients had suffered decided attacks of inflammation in the pericardium shortly before death; and in two of these cases we had proof of some previous affection of the same kind. In one only were the signs of inflammation in the peritoneum well marked. Five out of the seventeen had altogether escaped inflammatory affections of the serous membranes; and one of these died with inflammation of the epiglottis. Thus then we have proof of the frequency of these attacks; and at the same time it is obvious that they form no essential part of the disease, since in several of the best marked cases there has been no reason whatsoever to suspect inflammation during life, and no traces of its existence have been discovered after death. With regard to the cerebral affections coming on in the progress of these diseases, we find in the cases above related both apoplexy and epilepsy to have occurred; and a very well marked instance of the former was witnessed in a patient of the name of MACGUIRE, in the Clinical ward in 1825. Whatever mode of treatment is adopted must therefore have a reference to these impending dangers; and hence it is that in the early stages of the disease it will generally be indispensably necessary to have recourse to active depletion, even as a preventive measure; but still more should we be ready at every stage of the complaint

to combat the first symptoms of inflammation on the one hand, or of cerebral congestion on the other, by the free abstraction of blood the moment we have our fears awakened. And here it is well to remark, that the approach and progress of inflammatory affection of the chest in these cases are peculiarly insidious: for the attention is apt to be drawn off by the marked hydropic tendency; and we are led to ascribe many of the symptoms,—such as the slight cough, the dyspnoea, and the difficulty of lying down,—to effusion rather than inflammation; and this the more because the pulse throughout the disease is often marked by a preternatural sharpness and frequency. Thus although in the case of HOBSON the inflammation of the pericardium was confidently predicted, it was but suspected in KING, and was altogether concealed from observation in RODERICK. When the inflammatory attack comes on early in the disease, it is often overcome by very free depletion, as was decidedly the case with SPOONER; but in the more advanced stages of the disease, the patient bears the depletion so ill as necessarily in some degree to check its employment. Bleeding is also a most important remedy with a view of restoring the healthy action of the kidneys; that is, with the view of removing what appears to be the chief source, if not of the disease itself, at least of many of its most alarming symptoms. There is reason to believe that a state of great congestion, perhaps an actual process of slow inflammation, exists in various internal organs, and particularly in the kidneys, where it probably lays the foundation for their future disorganization. The appearance exhibited on the examination of EVANS (Plate V) gave most striking evidence of this circumstance, had there been any room to doubt the fact after the very frequent occurrence of hæmaturia in the other cases I have related. In a great many instances the abstraction of blood generally has been productive of speedy good effects; and in other cases it has seemed to me, that by drawing blood locally by cupping from the loins much good has been effected.

Purgatives generally act well; the Elaterium in the case of EVANS evidently gave much relief; and all the saline laxatives

which unite a certain degree of diuretic power are decidedly useful. Amongst these I have found the Supertartrate of Potash the most efficacious; and the best mode of exhibiting it when the stomach will admit, is by directing the patient to take a large draught of a mixture containing more of the salt than the water will dissolve, the first thing in the morning: and it will be seen that in some cases I have almost trusted entirely to this remedy. Where the stomach will not bear this mode of administering purgatives, the combination of Jalap, Supertartrate of Potash, and a little Ginger repeated from time to time, answers well, or even frequent doses of Castor Oil have been very useful.

The diuretic remedy which I have generally used, has been the Squill in its different forms: but it has always acted best when given in combination with Hyoseyamus, or when a grain of Opium has been prescribed once or twice a day. Indeed I cannot but consider this an important part of the treatment, with a view to diminish the irritation of the kidneys, as well as to allay the general disturbance which must necessarily result to the constitution, from the circulation of blood which has been so imperfectly acted upon by these organs. Digitalis has in some instances been cautiously administered with temporary advantage, and seems by its power of checking the circulation to be well adapted to those cases where the pulse is sharp, as frequently occurs throughout the whole progress of this disease. In the case of PLUME, Digitalis acted well: in the treatment of THOMAS it entirely failed. Under certain circumstances, more particularly when the more inflammatory stage of the disease has subsided, Turpentine employed in the mode of friction, and the Peruvian balsam administered internally, have seemed decidedly useful.

One of the most important questions in the treatment of this class of dropsies, is the propriety of employing Mercury. It is consistent with the most successful treatment of many forms of inflammatory disease, that we should have recourse to the valuable combination of Calomel with Opium; and it is consistent with what is generally deemed good practice, that by the

cautious use of mercury we should endeavour to produce more healthy action, and to promote absorption when there is reason to believe that disease has left any chronic morbid action tending to produce unhealthy deposit in glandular structures. Still however, the cases which have proved most successful in my own practice, have generally been those in which I have rigidly abstained from the use of mercury. In some cases I have seen the good effects of other remedies entirely interrupted by the mercurial action; and I have likewise seen several instances in which the cure, when mercurials have formed part of the plan, has been protracted to a great length; and a great many in which the full action of mercury has not prevented the regular progress of the disease, and its fatal termination. Yet I have undoubtedly seen well marked cases of this disease with decidedly coagulable urine, when taken early, in which the free use of mercury to complete ptyalism has not prevented the patients from deriving great, perhaps even perfect relief, from the remedies with which it was combined,—these remedies having been bleeding, purging, and diuretics. Independently of the very great doubt which exists as to the advantage to be derived from mercury, there is one circumstance which most materially limits our power of employing it, and that is the violence and rapidity with which the ptyalism often comes on, and the great difficulty which is frequently experienced in restraining its effects: for when the cellular membrane is in the peculiar state of anasarca induced by this disease, the gums and cheeks are not capable of supporting the process of ulceration, and often pass into a state of gangrene.

In those cases where, as in BONHAM and STEWART, the kidney, besides apparently having some morbid deposit, has become preternaturally hard, we can only employ palliative remedies: and if we could ascertain by well marked symptoms the existence of this state, probably the great advantage we should gain from the knowledge, would be in its restraining us from adopting those more active remedies, which would be apt to wear out the powers of life, without affording any permanent relief to the organs affected.

Where, as in a case to which I have only referred, we have a flaccid, watery and dissolved state of the kidney, I can point out no diagnostic symptoms by which it can be discovered, except such as show general debility of circulation and feebleness in the structure of the heart; for probably the feeble condition of the two organs may often be found coexistent. If this be the case, it is not improbable that Tonics will be the most appropriate remedies. In one or two cases of anasarca which I have lately had under my care, where from the feeble but extensive beat of the heart I was led to suppose that a feeble state of that organ existed, a combination of Sulphate of Quinine with Squill, effectually restored the patient. And occasionally we find anasarca even with coagulable urine so marked by debility, that tonics and steel give decided relief; probably it is as a tonic that the Uva Ursi is sometimes useful.

OBSERVATIONS ON THE CHEMICAL PROPERTIES OF THE URINE
IN THE FOREGOING CASES. BY JOHN BOSTOCK, M.D.

Upper Bedford Place, April 24th, 1827.

DEAR SIR,

I PROPOSE in this letter to give you some account of the experiments which I have performed on the various specimens of morbid urine which I have received from you, for the purpose of illustrating your pathological observations.

The number of specimens upon which I shall remark are twenty-eight. There were six obtained from the patient RODE-RICK, the respective dates of which were Dec. 26th, Jan. 12th, two on Jan. 31st, April 14th and 18th; these I shall designate by consecutive numbers; five from PLUME, received on Feb. 1st, two on the 19th, March 1st, and April 14th; two from HOBSON, on the 13th and 15th of March; two from THOMAS, Jan. 12th and 22nd; two from WEST*, March 7th and April 14th; and

* A sailor, æt. 56, admitted into Guy's Hospital, 28th Feb. 1827, with anasarca which had already existed for five months. Urine copious, light coloured, highly coagulable. Pulse from 85 to 100, sharp. He has been bled twice, and the blood has been buffed. He has chiefly been treated by diuretics and opiates, and some tonics; mercury has been avoided. He still remains under treatment.

two from HUNTER, on March 14th and April 22nd, which I shall designate in the same manner; and a single specimen from each of the following cases:—STEWART, received Jan. 4th; SALLAWAY, Jan. 8th; CASTLE, the 15th; SPOONER, the 26th; DAVIES*, the 31st; ALCORNE†, Feb. 27th; GALLOWAY, March 15th; OPIE‡, April 14th, and TODD on the same day.

1. With respect to the quantity of matter dissolved or suspended in the urine; this I found, in most of the cases which I examined, to be below the average. The greatest specific gravity which I have found in any of the specimens, occurred in the case of ALCORNE; it was 1.032. In the six specimens from RODERICK it was 1.024, 1.029, 1.022, 1.024, 1.022, and 1.017; four of the specimens from PLUME were 1.022, 1.021, 1.021, and 1.015; CASTLE was 1.019; STEWART, SPOONER, and DAVIES, was each 1.016; SALLAWAY and THOMAS, 1.014; WEST, 1.015 and 1.012; TODD, OPIE, and HUNTER (No. 2), were 1.012. The two specimens from HOBSON were 1.011 and 1.010; GALLOWAY, 1.008; and HUNTER (No. 1), 1.006. The average of these twenty-six cases is 1.017. The specific gravity of the urine even in a state of health, and in the same individuals, differs so much at different times, according to the period it has been retained in the bladder, and from a variety of other circumstances, that a great number of observations are necessary to enable us to draw any general conclusions upon the subject; but my experiments are sufficiently numerous to warrant the conclusion, that the specific gravity of dropsical urine which coagulates is less than that of urine in the healthy condition of the system.

2. Urine which has a lower specific gravity than ordinary, may be considered under three points of view: either as natural urine, merely in a state of dilution; as having a deficiency in the proportion of some of its ingredients; or, together with this

* A case of anasarca after recovery from ague, which was admitted into Guy's Hospital, Nov. 29th, nine days after its first appearance; the urine coagulating by heat in numerous small flakes. He left the house much relieved.

† A young woman, aet. 26, who had suffered several attacks of anasarca, and at length died with evidence of inflammation and effusion in the chest; the urine coagulating freely by heat. It was impossible to obtain any examination after death.

‡ A carter, aet. 23, attacked with anasarca and ascites on April 4th, the day of his admission into Guy's Hospital on account of diarrhoea. He has since had ten quarts of serum taken from the abdomen, and still remains under treatment.

deficiency, as containing some extraneous substance. My experiments lead me to conclude, that the specimens of urine which you have sent me were all of them in the third condition, being deficient in some of the natural constituents, yet at the same time containing a quantity of extraneous matter. The circumstance which was originally noticed by Cruickshanks, and afterwards more particularly attended to by Dr. Blackall, as occurring in certain species of dropsy, of the urine coagulating in a greater or less degree by heat, must be ascribed to the presence of albumen, as this is the only proximate principle with which we are acquainted that possesses this property. But it still remains for us to inquire, whether the albumen in dropsical urine is precisely similar to the albumen in the serum of the blood, or in the white of the egg. Upon this point I think it may be asserted, that in certain cases the albumen in dropsical urine possesses every property of the albumen of the blood; the urine coagulates by the application of heat in the same manner with diluted serum, and is similarly affected by chemical re-agents. If such urine be exposed to the heat of boiling water, and still more if we add to it the solution of the bichloride of mercury, muriatic acid, a strong infusion of tan, or, according to Dr. Prout's process, the ferro-prussiate of potash, and if the fluid is afterwards heated, the albumen, even when it exists in minute quantity, separates in the form of dense flakes, leaving the urine nearly transparent.

There are, however, certain cases in which, although the quantity of extraneous animal matter is very considerable, as indicated by the specific gravity and by the effects of heat and of chemical re-agents, yet still the complete separation of it cannot be effected. The fluid is rendered thick and viscid; but no distinct coagulum forms in it, nor can it be separated by passing the fluid through a filter: in some cases the albuminous matter remains suspended for an indefinite period; in others it is very slowly deposited in the form of a flocculent cloud. Some of the specimens of urine after the application of heat very much resembled a solution of jelly; and I found that after the bichloride of mercury had acted upon it, the more complete

separation of the albumen was effected by the application of a strong infusion of tan. Yet I do not consider this as a proof of the presence of jelly in the urine, because the operation of heat upon it did not correspond to what we know takes place with respect to this proximate principle: nor did the urine in these cases resemble a fluid which contained mucus; so that I am disposed to regard these peculiar effects to depend rather upon some change or modification in the nature of the albumen, than upon the admixture of any other proximate principle. With respect to the state of the albumen in the cases under examination, if we arrange them according to the degree in which the application of heat or of chemical re-agents had the effect of separating the albuminous matter, they will stand in about the following order. In RODERICK (No. 3), in CASTLE, SPOONER, DAVIES, ALCORNE, WEST (Nos. 1 and 2), and in GALLOWAY, the separation was nearly complete. In RODERICK (Nos. 1 and 4), in STEWART, SALLAWAY, PLUME (Nos. 1 and 4), and in HOBSON (Nos. 1 and 2), the separation took place slowly, and the precipitate always remained soft; while in RODERICK (Nos. 2, 5 and 6), in PLUME (Nos. 2 and 3), in THOMAS (Nos. 1 and 2), and in OPIE, the fluid never became clear, owing to the imperfect separation of the albumen. It appears that the state of the albumen, with respect to its disposition to separate from the fluid, bears no exact ratio to its specific gravity. The urine of ALCORNE and of GALLOWAY, the first having the greatest, and the second nearly the least specific gravity, agreeing in this respect.

The state of the urine, with respect to the presence of uncombined acid or alkali, will have some effect upon the separation of the albumen, as produced by the application of heat. This indeed I found to be the case in the urine of RODERICK (No. 5), which indicated an excess of alkali. When heated without addition, it was converted into a uniform coagulum, which could scarcely have been distinguished by the eye from the serum of the blood; but when the alkali was saturated with acetic acid, a tendency to separation took place, although still in a very imperfect degree. The urine of HUNTER (No. 2), was also

alkalescent; and when simply heated, did [not] manifest any tendency to coagulation; but after the neutralization of the alkali, a small quantity of a soft coagulum was thrown down. But the deficiency of acid or the presence of alkali, although separately or conjointly they may produce some effect, cannot be considered the principal cause. In the case of RODERICK (No. 6), the coagulum produced was more considerable than in No. 5, and showed at least as little tendency to separation, although in the former case the urine was not alkaline. In the urine of THOMAS and of OPIE, where the separation of the albumen was very imperfect, the fluid appeared to be rather more than usually acid, and had even that sourish smell, especially when heated, which is occasionally met with in dropsical urine, and which appears to depend upon the presence of acetic acid. I may further remark, that in the natural albuminous fluids which are characterized by their property of coagulating, we always meet with an excess of alkali. With respect to the acid or alkaline state of the different specimens of urine which I examined, those of THOMAS, of HUNTER (No. 1), and of OPIE, seemed to contain the greatest quantity of uncombined acid: those of SPOONER, of RODERICK (No. 6), of WEST (Nos. 1 and 2), and of PLUME (No. 5), were nearly neutral; while RODERICK (No. 5), HUNTER (No. 2), and TODD, were decidedly alkaline.

The next point is to ascertain in what quantity the albumen exists, and what proportion it bears to the urea and the salts, which are found in healthy urine. For this purpose the urine was evaporated to a thick extract; this was digested in alcohol, by which the urea was removed from it, and the residue was afterwards digested in water, by which the greatest part of the salts was dissolved. Another method which I adopted was to separate the albumen by heat, or by heat in conjunction with the bichloride of mercury, and to estimate its quantity by comparing the specific gravity of the urine before and after the process; the fluid was then evaporated, and the extract examined in the usual manner. By these means I obtained results which, although by no means perfectly accurate, were sufficiently so for the object in view. The most correct chemists differ so much

in their account of what may be considered as the quantity of solid contents in healthy urine, depending upon the variation which actually takes place in this respect, that our estimates can only be regarded as indicating a general average. We find the same uncertainty, depending probably upon the same cause, in the proportion which the urea and the salts bear to each other. My own experiments would lead me to conclude that the average quantity of the urea, as separated from the salts by alcohol, composes about two-thirds of the extract; and supposing the whole to amount to 6 per cent of the weight of the urine, it will give us 4 per cent of urea, and 2 of the salts.

I must now inquire how far the composition of some of the specimens of urine agreed with the above proportion. In the first specimen of RODERICK's urine which I examined, the amount of the albumen when completely dried was equal to about two-fifths of the whole of the solid contents; after an interval of seventeen days, the urine of the same patient was again examined; its specific gravity was now increased from 1·024 to 1·029, and the albumen was very nearly double the weight of the urea: in this latter case the albumen was soft, and separated very slowly from the fluid. In the case of STEWART, where the specific gravity of the urine was 1·016 or 4·2 per cent, the albumen was only about 1 per cent, or one-fourth of the whole of the solid contents. The specimens of RODERICK's urine (Nos. 3 and 4), deserve attention, as having been voided the one before, and the other after bleeding. The specific gravity of the first was 1·022; the quantity of albumen was not large, but it separated completely by coagulation, leaving the fluid clear, and holding in solution a considerable quantity of urea. After bleeding, the specific gravity was increased to 1·024; the urine was turbid, there was a copious deposition of the earthy phosphates, while the albumen seemed to be in less quantity and was only imperfectly separated by the chemical reagents.

I had likewise an opportunity of examining the urine of PLUME before and after bleeding. In the first case the specific gravity was 1·021, equivalent to about 4·5 per cent of solid contents; by adding the bichloride of mercury and exposing it

to heat, a copious precipitate was produced, but it did not separate from the fluid, nor was it completely removed by filtration; by this operation the specific gravity was reduced to 1.007, indicating 3.3 per cent of albumen, or nearly two-thirds of the whole. The urine of the same patient after bleeding had the specific gravity of 1.015; and after the separation of the albumen it was reduced to 1.005, indicating 4 per cent of extract, and 2.5 of albumen. In this case therefore bleeding had the effect of diminishing the total amount of the solid contents, without much affecting the proportion of the ingredients. After an interval of ten days, I received another specimen of this patient's urine; the specific gravity was as at first 1.021, but the quantity of albumen was now very much diminished, amounting to no more than about 1.25 per cent of the weight of the fluid. The urine which exhibited the lowest specific gravity of any of the specimens which came under my observation, except that from GALLOWAY, was HOBSON'S, of which I had two specimens. They were very nearly similar in all respects, the specific gravity of the one being 1.010, of the other 1.011. But although the total amount of the solid contents was so small, the proportion of albumen was very considerable, being nearly double the amount of the urea and the salts taken together. In this case although the total amount of solid contents was only about 3 per cent, nearly 2 per cent of this appeared to be albumen. In the urine of GALLOWAY however, which contained not much more than 2 per cent in the whole, the albumen constituted not much more than $\frac{1}{2}$ per cent. That of ALCORNE on the other hand, the specific gravity of which was the greatest of any that I examined, indicating 8.5 per cent of solid contents, had 5.5 per cent, or nearly two-thirds of the whole of albumen; while the urine of PLUME (No. 5), which agreed with that of ALCORNE in its specific gravity, had exactly the same proportion of albumen with that of GALLOWAY. Without going further into the detail of individual cases, I may state as the result of my experiments generally, that the quantity of albumen in the urine bore no exact relation to the total amount of its solid contents, or to that of the urea in particular.

3. I may appear to be encroaching upon your province, if I offer any remarks upon the inferences which may be drawn from the presence of this albuminous matter in the urine; but as my remarks will principally refer to the chemical nature of the fluid, you will perhaps think them not altogether out of place. It is commonly said that the presence of albumen in the urine is a morbid occurrence, and it has even been supposed to be a pathognomonic symptom of a certain state of the constitution, or still more to be an indication of the existence of certain specific diseases. The first of these positions may be literally true, if we regard the albumen as existing in a state which is coagulable by heat; but it must be admitted on the other hand, that an albuminous state of the urine is produced by such a variety of circumstances, and many of them of so trifling a nature, as to render it almost a constant occurrence. In a great majority of cases it may be detected in the urine of persons in apparent health, by means of the appropriate tests. In my own person I have very seldom found the fluid to be entirely free from it, and I have observed it to be increased to a considerable amount by the slightest causes. But although the substance which is here present in the urine may be characterized generally as albumen, yet it is to be regarded as albumen in a modified state, because mere heat will detect albumen in the state in which it exists in the white of the egg in much smaller quantity, than in some specimens of urine where heat has no action upon it. I have also found certain states of the urine where heat had no effect, but where muriatic acid threw down a precipitate; and again, where muriatic acid had no effect, but where the albumen was detected by the bichloride of mercury, or the ferro-prussiate of potash. How far these different states of the albuminous matter in urine indicate different stages of diseased action, so as to throw any light upon the nature of the symptoms, I will not decide; but I think it is a subject which deserves to be further examined.

4. Among the miscellaneous circumstances which I shall notice, is the peculiar colour which the urine often assumes in its morbid state. Instead of the orange or citron colour, it

healthy urine, it is sometimes brown, straw-coloured, or of a reddish hue. With respect to the straw colour it is, I think, generally connected with the presence of albumen, or rather with the deficiency of urea, and I am inclined to think that the brown colour indicates an excess of saline matter. In the case of OPIE, the urine was very decidedly browner than ordinary, and the proportion of the muriatic salts to the urea appeared to be larger than ordinary. The other cases in which this brown colour was the most marked were SALLOWAY and CASTLE. The straw colour was the most apparent in the urine of PLUME, WEST and GALLOWAY, and also was perceptible in that of RODERICK before bleeding: HOBSON afforded the best example of the reddish tinge of the urine; in this case there was indeed a deposition of the pink sediment, but the colour of the fluid remained after the deposition, as if depending on some other cause. Some of the specimens of urine which I examined deposited a copious white sediment upon the bottom and sides of the vessel; this was particularly the case with the urine of RODERICK after bleeding, and with that of CASTLE, THOMAS, and GALLOWAY, and in a slight degree with SPOONER. It will appear, from these observations, that I was not able to trace any connection between the deposition of the white or pink sediment and the albuminous state of the urine.

I have observed a considerable difference in the tendency to decomposition in the different kinds of urine. The albuminous urine frequently acquired an acidulous odour very similar to that of sour milk, and it was certainly less disposed to become putrid than in ordinary cases. This, however, I am disposed to think was the case with dropsical urine generally, which may depend upon its containing a smaller proportion of urea.

There are two of the specimens of urine which may deserve particular notice, as having been voided while the system was under the operation of mercury. This was the case with the fifth specimen of RODERICK's urine, received on the 14th of April. It was of the usual colour, although rather of a light shade, somewhat opake, and by standing for thirty-six hours it threw down a copious white flaky precipitate. Its specific gravity was 1.022,

it had an acrid penetrating odour, and indicated a considerable excess of alkali. On the 18th I received from you another specimen from the same patient (No. 6), the properties of which were considerably different. It was now of a dingy light straw colour, somewhat opake, and contained a number of small flakes which gradually subsided. Its specific gravity was 1·017, and it was very slightly acid; in forty-eight hours it had thrown down a copious white precipitate, which seemed to consist principally of the earthy phosphates, and after an interval of five days it indicated a slight excess of alkali.

The other case to which I referred was that of HUNTER. The first specimen I received on the 14th of March; its characters at that time were as follows: it was brownish, slightly opake, specific gravity not more than 1·006, it was unusually acid, and had a sourish smell; a very copious precipitate was produced by boiling, but it did not separate very completely from the fluid. On the 2nd of April I received the second specimen, after the patient had undergone a mercurial salivation; the urine was now of a dingy straw colour, rather opake, specific gravity 1·012, decidedly alkaline. Boiling without addition produced no effect upon it, but by adding acetic acid in sufficient quantity to neutralize the alkali, a small quantity of a soft coagulum was produced, which slowly subsided. It may be well worth observing how far an alkalescent state of the urine is the usual consequence of mercurial action upon the system.

I am, dear Sir, most truly your's,

J. BOSTOCK.

Upper Bedford Place, May 28th, 1827.

MY DEAR SIR,

SINCE the date of my last letter I have received from you three additional specimens of urine, the leading properties of which I will briefly state to you.—The first was received on the 16th of April, and, as you informed me, was procured from a Dispensary patient under the care of Dr. Hodgkin, named

WILLIAM ELSELY. It had been exposed to heat before it was sent to me, and was converted into what appeared a uniform soft solid, very similar to the serum of the blood. On the following day there was some tendency to separation, and upon throwing the whole upon a filter, a quantity of a light straw-coloured fluid passed through; the albumen when dried, appeared to exist in the proportion of about 5·6 per cent.

The next specimen, sent on the 24th of April, which was from the same patient, was of a light straw colour, and had the specific gravity of 1·012. It was converted by heat into a soft solid, from which the coagulum slowly separated; after filtration the fluid had the specific gravity of 1·010. The total amount of solid contents in this urine was 3·2 per cent, of which the greatest part was albumen.

The third specimen, received on the same day with the last, was one which had been sent to you by Dr. Alderson; it was light-coloured, and had the specific gravity of 1·014. Upon the application of heat a precipitate was separated in small quantity, but of a dense consistence, leaving the fluid perfectly clear and bright. The specific gravity of the urine was reduced by boiling to 1·012, so that the total amount of the solid contents may be estimated at 3·7 per cent, and the albumen at 2 per cent.

I have received from you at different times specimens of the crassamentum and serum of some of the dropsical patients whose urine I examined. With respect to the former substance, the only remark that I have to make is, that it was, in most of the cases, covered with a thick buffy coat, and was generally of a firm consistence. The appearance of the serum was more varied; it was occasionally turbid, and upon standing for twenty-four hours a white creamy substance rose to the surface, but I could not detect any proper oily matter in it. On exposing it to heat, it coagulated in the ordinary manner, except that the coagulum seemed to contain an unusual number of cells and that a greater quantity of serosity separated from it. I think I may venture to say, that the serum generally in these cases contained less albumen than in health, although I am not able to state precisely the amount of this difference. The serosity

which drained from the coagulated albumen, on being evaporated, was found to consist in part of an animal matter, possessing peculiar properties, which seemed to approach to those of the urea; it was partially soluble in alcohol, and was acted upon in a somewhat similar manner by nitric acid. These phaenomena were particularly noticed in the serosity of RODE-RICK and of WEST*.

I must apologize for sending you so imperfect an account of this substance, which I am aware can be of little value, except so far as it may induce others to examine the subject with more attention.

I am, my dear Sir, very truly your's,

J. BOSTOCK.

June 4th, 1827.

I have to give you the account of one more specimen of dropsical urine, which you sent me on the 2nd of June. It was opake and muddy, and by standing twenty-four hours deposited a considerable quantity of a white flaky sediment, but no precipitate adhered to the sides of the glass. It had a putrescent odour, and was strongly alkaline; its specific gravity was 1.012. The usual reagents indicated a large quantity of albumen; and by boiling it was converted into a uniform soft solid, which showed no tendency to separation after standing for thirty-six hours, and from which only a small quantity of a colourless fluid drained off, the whole presenting an appearance which could not have been distinguished by the eye from the coagulum of serum, and the separation of the serosity. I was prevented by an accident from ascertaining the exact proportion of the albumen to the other contents of this urine; but I may state in general terms, that the quantity of urea was very small, so that nearly the whole of the animal matter may be regarded as albu-

* A substance slightly analogous to urea was discovered by Dr. Prout in a specimen of serum of the blood, which I sent to him in November last, taken from a patient labouring under partial suppression of urine from an inflammatory attack in the kidneys, in which the urine was coagulable and mixed with blood; and in many respects this case illustrated the source of that anasarca of which I have been treating.—R. B.

men, nearly in the same state in which it exists in the serum of the blood.

At the same time you sent me a portion of crassamentum and of serum from the same patient. The crassamentum was buffed and cupped in a very remarkable degree, indeed so much so that I shall attempt to give an accurate idea of it by stating the following particulars. The clot was 2·4 inches in diameter, and 1·1 in thickness: the buffed part of the surface was so much contracted, as to be only 1·8 inch in diameter: it was depressed ·5 inch at its centre, and was between ·1 and ·2 inch in thickness at its edge; it was almost perfectly white, and the passage from the white to the red part was with scarcely any intermediate gradation. I am well aware that the appearance of the clot depends much upon the mode in which it flows from the vessel, and upon the cup into which it is received; but I apprehend that, making every allowance for these circumstances, the blood in question will be admitted to exhibit, in a very remarkable degree, those appearances which are ordinarily ascribed to the inflammatory action of the system, in whatever we may conceive this to exist.

The serum was also worthy of attention as taken in connection with the state of the other fluids. Its specific gravity was almost exactly the same with that of the urine, being no more than 1·013, which I believe to be lower than had ever occurred to me in the numerous experiments which I have made upon this substance. In conformity with this circumstance, I found that upon exposing it to the heat of boiling water, it was converted into a mass so soft as not to bear cutting with a knife, having a consistence scarcely as dense as that of the coagulated urine from the same patient. We have here, therefore, an example of the blood exhibiting a very great deficiency of albumen, at the same time that we observe the mode in which it passes off from the system by means of the kidney, while this organ has its appropriate office of secreting urea nearly suspended.—I regret that I did not attend particularly to the specific gravity of the other specimens of dropsical serum which you sent me: from some incidental remarks in my notes, I sus-

pect that its specific gravity would have been found lower than ordinary; but it is a circumstance which I shall be anxious to ascertain when any opportunity occurs.

J. BOSTOCK.

The above specimens of urine and blood were procured from SARAH SUTTON, *aet.* 25, who has been under my care about a fortnight: a woman of intemperate habits attacked with anasarca about two months before I saw her, and who has very lately become the subject of ascites. The quantity of urine which she passes is very small, but she is at present improving under the employment of small bleedings and gentle diuretics. At some future time I shall report the progress and termination of this case: it has all the appearance of being completely analogous to those I have been recording.

CASE XXIV

The following letter, which refers to the patient of whose urine Dr. Bostock has made mention in page 86, came to me just as the present sheet was in the press.

‘MY DEAR FRIEND,

‘WILLIAM ELSELY,—a specimen of whose urine I some time ago (April 16th) brought to thee as some of the most coagulable which I had ever met with,—became my patient at the London Dispensary on the 22nd of March last. He was a large and rather corpulent man, about 50 years of age, of a lymphatic temperament. He had at one period of his life indulged not very sparingly in drink; but his habits in this respect were reported to have improved of late. His occupation as a dealer in Spitalfields Market exposed him greatly to wet and cold. In the course of the winter he contracted the catarrh for which he came under my care. He had besides some anasarca; but as even his legs were never very much swollen, this symptom, if my recollection serves me, had not much attracted his attention. He was ordered a mucilaginous mixture with Nitrate of Potass and Tincture of Hyoscyamus, and a pill of Conium and Ipecacuanha at night. These with an occasional aperient he continued to take for about ten days. His catarrhal symptoms abated, but the anasarca remained unaltered. I believe that it was about this time that I first discovered that this patient’s urine was coagulable. He then took ten grains of Squill pill with two grains of Digitalis at night, and ten drops of the Tincture of Squills were added to his mixture. He also used *chien dent* tea as a common drink, which considerably increased the flow of urine. His

bowels were kept open, not relaxed, by compound Jalap powder. He continued on this plan without any other alteration than the addition of a very small quantity of Blue pill, (which was never allowed to produce any effect on the mouth,) for nearly three weeks. His urine still continued coagulable, but not to so remarkable a degree as in the specimens which I brought to thee. The anasarca was very much reduced, but the patient felt himself weak; I believe however that he implicitly attended to my directions, though he felt the loss of the porter which he had been in the habit of taking. He was allowed a dessert-spoonful of gin in the dog's-grass tea. His bowels became disturbed, and the abdomen rather tender: I had him bled to eight ounces: discontinued the dog's-grass tea and the mixture, and gave him five grains of the Hydrarg. cum Creta, and five grains of Dover's powder, with one grain of powdered Digitalis. The tenderness of the abdomen continuing, I ordered him a mixture of turpentine and ammoniacal liniment, which afforded him prompt and permanent relief. He appeared on the 3rd of this present month to be in most respects better, but the urine was still very coagulable. I then ordered him ten drops of the Liquor Potassae with six drops of tincture of Opium in infusion of Gentian. From this time his urine improved in character, and the man found himself better. He requested leave to take his half-pint of porter in the middle of the day, to which I consented, at the same time continuing to warn him of the fatal nature of his complaint. His bowels required occasional aloetic pills. On the 14th instant he felt some little giddiness of head, which the recollection of the termination of DRUDGET's case, under thy care in Guy's, induced me immediately to combat by cupping. This for the time completely relieved him from the symptom: his legs at this time were scarcely sensibly oedematous. On the 17th he came to the Dispensary, and appeared to be doing well. On the 19th he was attacked with symptoms which, from the description given to me, appear to have been decidedly apoplectic. He lay for several hours motionless and in a state of insensibility, of which I had no intimation till after his death, which occurred on the morning of the 20th. The next day I applied for permission to inspect the body, which not being granted till the afternoon, I took advantage of the following morning.'

SECTIO CADAVERIS.—May 22nd, 1827.

'Though only about forty-eight hours had elapsed, decomposition had made most rapid progress. Finding the body in this state, I made no attempt to open the head. On opening the chest a quantity of gas escaped: there was a little sanious fluid in this cavity. The right pleura was nearly or altogether free from adhesion: in the left the adhesion was pretty extensive, but old. The lungs like the rest of the body were far

advanced in decomposition, excepting cadaveric infiltration they appeared quite free from adventitious deposit, but were perhaps a little emphysematous. The heart rather large, and very soft and flaccid; but I suspect this to have been part of the general change. The valves were healthy: some little earthy deposit was observable at the commencement of the aorta. From the abdomen gas also escaped; the collection of fluid in this cavity was very moderate. In the state in which the body was, I could observe no marks of inflammation, nor have I any thing to remark respecting the mucous membrane of the intestinal canal. The liver appeared to have been quite healthy. The spleen large, of a very dark colour, and, as might be expected, very soft. The KIDNEYS were both extraordinarily large; and decomposition having developed gas in their very substance, they were crepitant on pressure like a portion of lung. Though soft and very lacerable, and also containing a good deal of blood, it was very evident both to myself and to Dr. Millar, (who was kind enough to assist me,) that the cortical part was the seat of a pretty abundant quantity of the light coloured motley deposit, which thou and I have now so often had the opportunity of noticing together.

‘If thou canst make any thing of the very rough scratch which I now send, it is quite at thy service.

Thine truly,

THOMAS HODGKIN.’

Broad Street, May 24, 1827.

It is totally unnecessary to comment upon this case: it connects itself immediately with those which have gone before, and stands completely in confirmation of all which I have advanced. It presents us with another instance of disorganized kidney discovered by the coagulable character of the urine,—another instance of the probable effect of the abuse of spirituous liquors in inducing disease of the kidney while the liver retains its healthy structure,—another instance pointing to cold, wet, and repressed perspiration, as exciting causes of the anasarcaous

symptoms in this particular form of dropsy,—another instance of the difficulty of overcoming the disease,—and another instance to warn us of the danger there is of apoplectic symptoms instantaneously supervening, even when our fears in that respect have begun to be allayed.

The other specimen of coagulable urine referred to in page 86, was brought to me by Dr. James Alderson, who procured it from a patient who had experienced slight oedema in his ankles as far back as July 1826, but in whom the swelling of the legs had increased during the last three weeks so as to lead him to seek for medical assistance. The anasarca has in this case greatly diminished under complete abstinence from spirituous liquors; the use of five grains of the compound squill pill twice a-day; the daily employment of an infusion of Dog's-grass (*Triticum repens*); and a gentle purgative twice a-week. The patient has likewise twice been bled, once by the lancet and once by cupping. The urine has been for some weeks increased to five pints daily; the legs are much less oedematous; but the character of the urine is in no way improved.

CASES AND OBSERVATIONS, ILLUSTRATIVE OF RENAL DISEASE ACCOMPANIED WITH THE SECRETION OF ALBUMINOUS URINE

By DR. BRIGHT

THE importance and extensive prevalence of that form of disease, which, after it has continued for some time, is attended by the peculiar changes in the structure of the kidney, now pretty generally known by the names of 'mottling,' 'white degeneration,' 'contraction,' or 'granulation,' impresses itself every year more and more deeply on my mind; and whether I turn to the wards of the hospital, or reflect on the experience of private practice, I find, on every side, such examples of its fatal progress and unrelenting ravages, as induce me to consider it amongst the most frequent, as well as the most certain causes of death in some classes of the community, while it is of common occurrence in all; and I believe I speak within bounds, when I state, that not less than five hundred die of it annually in London alone. It is, indeed, an humiliating confession, that, although much attention has been directed to this disease for nearly ten years, and during that time there has probably been no period in which at least twenty cases might not have been pointed out in each of the large hospitals of the metropolis—and there is reason to believe that double that number may, at this moment, and at all times, be found in the wards of Guy's Hospital—yet little or nothing has been done towards devising a method of permanent relief, when the disease has been confirmed; and no fixed plan has been laid down, as affording a tolerable certainty of cure in the more recent cases. I believe that our want of success, in what are considered the more recent attacks, is frequently owing to the fact, that the disease is far more advanced than we suspect, when it first becomes the object of our attention: and I am most anxious, in the present communication, to impress upon the members of our profession the insidious nature of this

malady, that they may be led to watch its first approaches, with all the solicitude which they would feel on discovering the first suspicious symptoms of phthisis or of epilepsy. There is great reason to suppose that the seeds of this disease are often sown at an early period; and that intervals of apparent health produce a false security in the patient, his friends, and his medical attendants, even where apprehension has been early excited.

The first indications of the tendency to this disease is often haematuria, of a more or less decided character: this may originate from various causes, and yet may give evidence of the same tendency: scarlatina has apparently laid the foundation for the future mischief: exertion in childish plays has done the same; or it has sometimes appeared to be connected with suppressed catamenia. Intemperance seems its most usual source; and exposure to cold the most common cause of its developement and aggravation. It is, however, more particularly to those causes which operate in youth, or are apparently so casual as to tempt us to believe that when the immediate symptoms are subdued no evil can result, that I wish to direct attention. Where intemperance has laid the foundation, the mischief will generally be so deeply rooted before the discovery is made, that, even could we remove the exciting cause, little could be hoped from remedies; but at the same time, a more impressive warning against the intemperate use of ardent spirits cannot be derived from any other form of disease with which we are acquainted; since, most assuredly, by no other do so many individuals fall victims to this vice.

The history of this disease, and its symptoms, is nearly as follows:—

A child, or an adult, is affected with scarlatina, or some other acute disease; or has indulged in the intemperate use of ardent spirits for a series of months or years: he is exposed to some casual cause or habitual source of suppressed perspiration: he finds the secretion of his urine greatly increased, or he discovers that it is tinged with blood; or, without having made any such observation, he awakes in the morning with his face swollen, or his ankles puffy, or his hands oedematous. If he happen, in this

condition, to fall under the care of a practitioner who suspects the nature of his disease, it is found, that already his urine contains a notable quantity of albumen: his pulse is full and hard, his skin dry, he has often headache, and sometimes a sense of weight or pain across the loins. Under treatment more or less active, or sometimes without any treatment, the more obvious and distressing of these symptoms disappear; the swelling, whether casual or constant, is no longer observed; the urine ceases to evince any admixture of red particles; and, according to the degree of importance which has been attached to these symptoms, they are gradually lost sight of, or are absolutely forgotten. Nevertheless, from time to time the countenance becomes bloated; the skin is dry; headaches occur with unusual frequency; or the calls to micturition disturb the night's repose. After a time, the healthy colour of the countenance fades; a sense of weakness or pain in the loins increases; headaches, often accompanied by vomiting, add greatly to the general want of comfort; and a sense of lassitude, of weariness, and of depression, gradually steal over the bodily and mental frame. Again the assistance of medicine is sought. If the nature of the disease is suspected, the urine is carefully tested; and found, in almost every trial, to contain albumen, while the quantity of urea is gradually diminishing. If, in the attempt to give relief to the oppression of the system, blood is drawn, it is often buffed, or the serum is milky and opaque; and nice analysis will frequently detect a great deficiency of albumen, and sometimes manifest indications of the presence of urea. If the disease is not suspected, the liver, the stomach, or the brain divide the care of the practitioner, sometimes drawing him away entirely from the more important seat of disease. The swelling increases and decreases; the mind grows cheerful, or is sad; the secretions of the kidney or the skin are augmented or diminished, sometimes in alternate ratio, sometimes without apparent relation. Again the patient is restored to tolerable health; again he enters on his active duties: or he is perhaps, less fortunate;—the swelling increases, the urine becomes scanty, the powers of life seem to yield, the lungs become oedematous, and, in a state of asphyxia

or coma, he sinks into the grave; or a sudden effusion of serum into the glottis closes the passages of the air, and brings on a more sudden dissolution. Should he, however, have resumed the avocations of life, he is usually subject to constant recurrence of his symptoms; or again, almost dismissing the recollection of his ailment, he is suddenly seized with an acute attack of pericarditis, or with a still more acute attack of peritonitis, which, without any renewed warning, deprives him, in eight and forty hours, of his life. Should he escape this danger likewise, other perils await him; his headaches have been observed to become more frequent; his stomach more deranged; his vision indistinct; his hearing depraved: he is suddenly seized with a convulsive fit, and becomes blind. He struggles through the attack; but again and again it returns; and before a day or a week has elapsed, worn out by convulsions, or overwhelmed by coma, the painful history of his disease is closed.

Of the appearance presented after death, enough will be said in another part of the present communication: but one question may be asked in this place—Do we always find such lesion of the kidney as to bear us out in the belief, that the peculiar condition of the urine, to which I have already referred, shews that the disease, call it what we may, is connected necessarily and essentially with the derangement of that organ? After ten years' attentive—though, perhaps, I must not say completely impartial observation—I am ready to answer this question in the affirmative; and yet I confess that I have occasionally met with anomalies which have been somewhat difficult to explain.

I have certainly seen one or two cases, and have read statements of one or two more, in which the condition of the kidney would have led me to expect albuminous urine, but in which it had not been found to exist. In all these cases, however, the observations on the character of the urine have been made only a few days or weeks before death, at the close of a protracted illness; or the disease of the kidney has been complicated with other very extensive disease. A case occurred under my care, in the Clinical Ward, this winter, where a man died with ascites and a complication of most extensive disease of the liver and

peritoneum, with moderately-advanced granulation of the kidney; yet it was only by the most careful examination that any traces of albumen could be detected in his urine: and this leads me to observe, that the secretion is apt to undergo changes, even after the structural disease is established; which renders it requisite that we should not be content with examining the urine on one or two occasions, if we have any reason to suspect the existence of this disease. In the first place, it is quite certain, that if, from any cause, the urine becomes alkaline, the application of heat generally fails to produce coagulation; and in the next place, there has appeared to me to be an occasional alternation in the secreting power of the kidney; so that a large quantity of the lithates, or of crystallized lithic sand, is deposited, and the albuminous matter is not thrown off. I have this winter had a case of this kind likewise under my care, in a man whose symptoms bear all the character of renal disease, complicated with the disease of other viscera. His urine for several weeks was found to be distinctly albuminous: it then became loaded with the lithates; and now throws down abundant crystals of lithic sand, and no longer affords any trace of albumen: and mentioning this case to Dr. Addison, I was told, that very lately the converse of this had shewn itself in a case to which he had been called. All the symptoms led him to suspect this peculiar form of renal disease; but the urine did not coagulate, and was loaded with lithates. After a short time, the lithates disappeared, and now the albumen is very decidedly perceived in the urine. That such facts as these tend, in some degree, to render the presence of albumen in the urine, or its absence, a less unerring test, cannot be doubted; but these anomalies are so few, as to interfere very little with the general fact: and after all, in the present state of our knowledge, how few of our diagnostic marks are not more or less under the influence of the casual complications of disease! There is no doubt, likewise, that the morbid condition of the kidneys connected with this disease varies, in different cases, to such a degree as to lead to the belief that the action from which the change has resulted must at least be modified by circumstances

and constitutions. The kidney is sometimes simply contracted and hardened; sometimes loaded with an adventitious deposit; sometimes apparently degenerated throughout its whole texture; sometimes affected both with deposit, degeneration, and contraction; all probably the result of chronic excess of action. It is to be expected that modifications should arise in the degree and constancy of the morbid secretion, under such varieties of diseased appearance: but this is not, as yet, satisfactorily known; and I have certainly not always found the quantity of albumen increased in proportion to the apparent advance in the structural disease.

Another very important question is, the length of time which this disease may exist in the constitution, before it runs to its last fatal period: and although our experience in the hospital is great, the point of duration is yet undetermined; for, with all the advantages which an hospital affords for the multiplied accumulation of facts, there are some points on which the information derived in its wards is defective, and even apt to be erroneous; and amongst these may be reckoned one of great importance—the probable duration of life, under any disease. If a case is much relieved, the hospital physician loses sight of it, and in all probability sees it no more; knowing nothing of future relapses, or of the ultimate result. On the other hand, a very large proportion of his cases are arrived at the most advanced stages of the respective disorders: the circumstances of the patients have been such, as to render them inattentive to the earlier indications of disease; and it is only when they can no longer pursue their laborious occupations, that they are driven, too late, to seek relief. Hence the physician is liable to form a wrong estimate of the progress of the disease under more favourable circumstances; and it is necessary to correct his views by a comparison with the history and results of private practice.

There has not yet, perhaps, been sufficient time, since this disease of the kidneys first attracted attention, to say to what extent life may be prolonged while the body is under its influence; but I believe, with care, its fatal effects may be kept at

bay, and a hazardous life may be protracted for many years. Should that care be neglected, the chance of life will be greatly diminished.

The cases which I now offer will be found to bear upon many points in the history I have just sketched out; and, amongst others, will tend to illustrate the subject of the probable duration of the disease, and some of the more insidious attacks which attend the fatal termination.

CASE I

Albuminous Urine.—Death from Apoplexy, after the disease had existed at least four years.

IN the month of March 1832, a physician, aged about 42, who had always lived freely, but not intemperately, applied to me, labouring under all the marked symptoms attendant upon the secretion of albuminous urine; his flesh wasting; his strength failing; his legs swollen. It appeared, that for nearly two years these and other symptoms had existed, and he had been treated by different medical men as labouring under diabetes, and under disease of the heart, and various other disorders. The urine was albuminous in the highest degree. I put him on the use of the decoction of the *pyrola umbellata*; and, after ten days, I added to this two grains of salicine, three times a day; and ordered him to employ a milk diet. He took milk and water for breakfast; a good ordinary dinner, with two glasses of port-wine and water; and milk and water again for tea. After he had continued this treatment for about six weeks, under the watchful care of his friend Mr. Chapman of Tooting, I received a letter from him, on the 28th of April, informing me of his intention to go to North America; where he had formerly spent many years, and where he thought he enjoyed better health than in England. To this letter he added: 'I am happy to say that your prescription has produced a favourable change; and, by persevering in the same treatment and diet, I may perhaps recover completely. My legs have gone down, and the thirst has diminished; and altogether I find myself better. The urine still contains a great quantity of albumen, but the secretion is not so great. The only unfavourable symptoms are, want of sleep; and no increase of substance, but rather the contrary, for I think I am thinner than I was: however, I live in hope.'

October 24, 1833: he entered my study, looking robust and strong, and in apparent health. He told me that he had spent above a year in Canada and North America, and had returned to England about three months ago: that, from the time of his leaving England, he had found his health improve; and when he returned, he appeared to be quite well. However, some of his symptoms had again shewn themselves, since his return: his legs began to swell, so that he was obliged always to wear bandages: his hands also swelled occasionally: he had great inability to sleep at night: suffered from vertigo:

his urine was coagulable by heat, though it emitted a urinous smell: appetite good: tongue clean: pulse from 80 to 90: skin freely perspirable. He kept his bowels regular, by pills. He remained in tolerable health; but was always excessively low-spirited, and suffered much from headache: he had constantly a slight tendency to anasarca, and his urine was always albuminous.

In the latter part of the summer of 1834, he again resolved, at all hazards, to try the effect of revisiting America; and he seemed, to a certain degree, recruited by the voyage. But in the latter end of November, having exposed himself a good deal in shooting, he was attacked with hemiplegia; and in three weeks after, died apoplectic, on the 15th of December.

In this case, it does not appear what was the precise cause to which the disorder of the urinary secretion owed its origin. Its existence is plainly traced, through a period exceeding four years; during which time the patient seems never to have enjoyed any thing approaching to a perfect state of health, though there were times when the symptoms had ceased to be recognised by ordinary observers. Mild remedies, and diet, certainly did him temporary good; but the faulty secretion of the kidneys remained, and very little inattention was sufficient to bring on that crisis in which he died. It is observable, that the skin was generally in a perspirable state; and perhaps to this was owing the protracted character of the disease.

CASE II

Albuminous Urine—Death with Convulsion and Coma, after the disease had probably existed eight years—Kidneys granulated.

IN the month of July 1835, a medical gentleman from the country, aged 33, came to consult me with regard to his general health. His countenance was somewhat pallid; otherwise, his looks did not bespeak material disease. He told me that his health had been good till about the age of twenty; when he began to complain of occasional dyspepsia, from which he had continued to suffer, and which had latterly increased. In the year 1826, he had the ulcerated sore-throat of scarlatina, but no rash; and seemed to have taken the complaint from attendance on patients affected with it. He was, at that time, very seriously ill; and his urine was observed to be deep-coloured, like coffee. This however soon ceased; but the urine had generally been of a light colour, abundant, and often inclined to froth, and, he believed, had always been albuminous since that time. It had nevertheless on two occasions, first in 1833, and next in February 1835, put on the same dark appearance as in the year 1826.

Six years ago he began to suffer from occasional pain in the back and region of the kidneys, rather more on the left than the right side; and he had wandering pains about the heart, which were considered to be neuralgic. The latter symptoms subsided, but the dull pain in the back continued; and he had since been subject to puffy oedematous swelling of the face, legs, and ankles. Four years ago he had an attack of catarrhal inflammation of the chest, which appeared to have rendered him very susceptible of atmospheric changes; and

about a year and a half ago he wasted considerably. He had suffered, for the last fifteen years, from severe attacks of sick headache, with vomiting, which continued for several hours; and this had increased during the last few months. The fluid which was ejected from his stomach was excessively acid, and sometimes tinged with bile: the bowels were habitually costive. I understood that he has been temperate as regards drink, but irregular in his meals. I examined his urine carefully, found it of a light straw colour, very acid, and throwing down numerous flocculi of albumen by the application of a moderate degree of heat. He evidently saw that I considered his case one of a most serious character; and he consented to do any thing I would direct, consistently with his continuing to practise his profession. I enjoined upon him the greatest care in avoiding exposure to cold and chills; told him to clothe himself completely in flannel; to keep strictly to a milk diet; and to regulate his bowels with scammony or some simple purgative; and I prescribed powders of the uva ursi, soda, and compound ipecacuanha powder, to be taken thrice a day.

I saw him on the 1st of October following, improved in appearance, and, as he said, greatly improved in his power of exertion and in his general feelings; but the urine still coagulable. He ascribed this favourable alteration entirely to a most rigid adherence to the milk diet, and the occasional use of scammony to regulate the bowels. He had not continued the powders long.

The next report I obtained of this gentleman was an account of his death, which had taken place on the 27th of November, about eight weeks after I had last seen him apparently so much improved. I learned, that about six weeks before his death he had suffered most severely from headache and vomiting; which was now accompanied by dimness of sight, or a kind of mistiness, as he described it; and a whizzing in his ears, which was not more on one side than on the other. During the last month, while he was still going about, he complained of an inability to direct his arms and legs, which affected the left rather than the right side. For the last fortnight he kept his bed; and during that time he had frequent twitchings of different muscles; and generally at night, when he fell asleep, was attacked with a convulsion, which almost raised him from his bed. On the fifth day before his death he had three attacks of epilepsy, and one or two on the following days: during the last two days of his life he lay in a comatose state. The body was very carefully examined forty-five hours after death; and Mr. Hilton, who conducted it, has favoured me with the following minute particulars of the appearances.

SECTIO CADAVERIS

Putrefaction had advanced rather rapidly: the body gave off that very unpleasant smell, which I have experienced in cases of a similar nature; and had the cadaveric sanguineous cellular infiltration on the posterior part of the thorax and abdomen, and the course of the cutaneous veins marked by the putre-

factive exudation of blood through their tunics into the surrounding tissue, which was yet fluid and homogeneous in its appearance. Some frothy mucus, slightly discoloured from decomposition, had exuded from the mouth. The eyes were but little shrunk, clear, and the pupils open, or rather dilated: no oedema of the legs or arms: limbs firm, fixed, and muscular: fingers strongly flexed, and feet extended.

Abdomen. The great omentum was drawn up to the left side, and almost concealed at the cardial extremity of the stomach near the spleen: it was not, however, contracted or corrugated, as from the effect of inflammation, but easily unfolded: was transparent, and contained no fat. The other viscera were in the natural position; mesenteric glands being slightly enlarged, but presenting no appearance of suppuration or softening. Peritoneum of the abdominal parietes thickened, without appearances of recent inflammation. The bladder contained about half a pint of clear, light, straw-coloured fluid, not coagulable by heat. About three ounces of slightly turbid reddish serum among the pelvic viscera in the lumbar region. The liver appeared healthy: the granular structure was, however, a little more distinct than natural. On making sections of it, the blood, being fluid, flowed freely. The inferior surface of the liver, in contact with the stomach, was of a dark blue colour, from gaseous decomposition. Gall-bladder contained about an ounce of well-coloured bile, which, on pressure, passed into the duodenum. The pancreas was healthy, and not at all enlarged. Considerable pressure on this gland caused some of its fluid, which was light-coloured and slightly opaque, to appear at the duodenal opening of the duct. Some old peritoneal adhesions were found at the posterior surface of the stomach, just above the pancreas. Oesophagus healthy throughout. The stomach was of ordinary capacity, not thickened; the rugae of its interior having chiefly a longitudinal direction, little curved, and most conspicuous towards its pyloric extremity: its submucous tissue was rather more vascular than natural, from congested veins: pylorus perfectly healthy. In the first two inches of the duodenum, the mucous membrane was abraded; surface rough, uneven, and granular, from enlarged

solitary mucous glands: the whole rather minutely injected with blood-vessels. This diseased condition extended to within a quarter of an inch, or less, of the pyloric opening, where the line of distinction from the healthy points was well marked. In the opposite direction, it did not extend quite so far as the ductus communis choledochus; but terminated in a very irregular edge, as if ulceration had been advancing towards that part unequally. The other portions of the small intestines were healthy; excepting at the lower part of the ileum, where several patches, varying in extent from three to four inches, presented the edges of the valvulae conniventes a good deal injected. There was some bile in the small intestines, mixed with mucous and a pultaceous mass of nutritious ingesta. The sigmoid flexure of the colon appeared to have suffered from irritation of long duration, manifesting more general arterial vascularity than natural; and in some parts, to the extent of a shilling or half-crown, the mucous membrane was minutely injected, and slightly raised, with distinct and enlarged mucous glands, and small vessels passing to each. Some of these spots were near the termination of the colon. Spleen, healthy and firm. The kidneys presented the minutely mottled degeneration, in their secreting structure, depicted and described in Vol. I of Dr. Bright's Medical Reports, in connection with coagulable urine. The right was rather more advanced in this change than the left; but neither was softened nor much increased in size. The ureters, bladder, and urethra, were healthy.'

Thorax.—About three drachms of slightly-coloured fluid, coagulable by heat, were found in the pericardium. No pleuritic adhesions were observed, except at the upper and outer part of the right lung. The left lung was emphysematous, presenting vesicles on the external surface; one as large as a chesnut occurring on the convex part, and several smaller ones at the lower edge. Structure of the lungs healthy, and not at all tuberculated: the posterior part, however, slightly oedematous, from cadaveric infiltration. Each pleural cavity contained six or eight ounces of serous fluid, tinged with blood; probably imbibed from surrounding parts after death, as there were no

obvious symptoms of recent pleurisy. Heart, large and flabby. The right side contained a good deal of thick fluid blood, and some coagula, with the colouring particles uniformly diffused, shewing great deficiency in the vital power of the blood: these were adherent, by being entangled in the muscoli pectinati of the right auricle and ventricle, more especially the latter. Valvular apparatus, on both sides, healthy; with the exception of a little thickening of one of the aortic valves, at its attached edge. The wall of the left ventricle was hypertrophied, but flaccid: the fibres remarkably pale, almost white, and very soft, easily breaking down on pressure. The cavity of the left ventricle was perhaps a little too large, in proportion to the other cavities of the organ. Lining membrane of the aorta red, and highly tinged by infiltrated blood, which could not be removed by scraping, but did not extend to the middle coat. No coagula in the aorta.'

'Head.—The superior portion of the frontal bone was much less prominent on the left than the right side: this had been observed some time before death. The bone at this part was not thickened; but the dura mater adhered more firmly than elsewhere, and, when exposed, was found loose and flaccid on the brain, corresponding to the external depression of the cranium. No coagula in the superior longitudinal sinus. The veins contained some globules of air, which had passed from the thorax, through the internal jugular, during the inspection of that cavity. On raising the dura mater carefully, there was a layer of coagulated blood recently effused, about the size of a half-crown, resting between the two layers of the arachnoid membrane; not firmly adherent to either, but more so to the arachnoid of the dura mater, corresponding to the external cranial depression where that membrane was flaccid. Arachnoid opaque and thickened (looking like wet, thin, white leather), from chronic inflammation over nearly the whole of the vertex on each side; rather more on the left; with some little serous effusion under the arachnoid. A small deposit of bone upon, or rather growth of bone from, the arachnoid, on the pia mater, somewhat larger than a pea, was observed under the loose por-

tion of the dura mater, presenting a superior, nodulated, uneven surface. There were also several cartilaginous spots, but none larger than the section of a pea, all on the left hemisphere of the brain. A portion of the falx major, near its junction with the tentorium, was ossified to about the extent of a sixpence, with irregular edges. The pia mater was not adherent, except over the superior part of the left anterior cerebral lobe, where it was slightly so, and some patches of cineritious structure came off with it; and at this point, the convolutions were not so prominent as at the corresponding part on the right side. The cineritious matter remarkably pale and exsanguine; its two layers easily separable by a little pressure between thumb and finger: this was more especially observable on the left side. The cranial portion of the carotid and vertebral, as well as the basilar arteries, quite healthy, and devoid of coagula. No fluid was found in the lateral ventricles; nor was there any morbid appearance, except that the left corpus striatum was not quite so large or prominent as the right, and that the arachnoid on it was remarkably opaque and thick at its outer edge, throughout its whole length, and for nearly a quarter of an inch in breadth. The outer side of the left thalamus presented, more distinctly than usual, an oval elongated eminence on its superior and external aspect. On slicing the corpus striatum, several cavities presented themselves, having in them branches of arteries quite empty. One of these tubular cavities was sufficiently large to admit a common quill: the others were smaller. It appeared as if the arteries had passed through an oval cyst, or that they had been enlarged to the dimensions of the cavity, and were now contracted. No aneurismal appearance was observed in the artery. The right side of the brain did not present any particular deviation from health.'

'Vertebral Column.—The spinal marrow and its membranes were examined with care, but did not offer any thing pathological. There was but little spinal fluid within the membranes; and nothing like effusion of either serum or blood.'

The whole history of this case is most interesting; shewing,

as it appears to do, the connexion of this disease, in the first place, with the scarlatina; presenting traces of it through its lengthened progress, attended by occasional indications in the obvious character of the urine, in the slight and often evanescent oedema of various parts, in the tendency to emaciation, in the returns of vomiting and severe headache, and, at last, in the more decided cerebral symptoms; which, after a succession of convulsive seizures, terminated in coma, when probably eight years, at least, had elapsed from the first commencement of the disease. The examination after death is no less interesting; as throwing light on all the various symptoms, and shewing a marked example of the structural change slowly established in the kidney, together with some of those alterations in other organs, which so frequently accompany this change as to give us great reason to believe in their being pathologically connected.

CASE III

Albuminous Urine—Death with Convulsion, after the disease had probably existed four years.

DEC. 25, 1835, I was requested to come immediately to meet Dr. Prout, in the case of Mr. W——, aged 17. I found him lying on his bed, with his eye-lids half closed, and his eyes rolling about in a kind of convulsive motion; his left hand lying powerless across his body; and his left leg almost paralyzed. His countenance was pale, tongue furred, and dry in the centre: respiration rather loud: pulse above 100, sharp and wiry: general surface, but particularly the head, warm. He complained of pain in the head, and lifted his hand to his forehead. His hearing was preternaturally acute: his vision nearly perfect, so that he saw and distinguished those around him; and he put out his tongue the instant he was desired. His urine was pale-coloured, acid, and very coagulable by heat. While we were in the room, he had a fit, in which both the leg and arm of the left side were violently convulsed; and he cried out with the pain he suffered, piteously requesting us to lay hold of his convulsed limbs. He seemed perfectly intelligent during the whole fit, and answered questions readily. The paroxysm lasted only a few minutes; after which he became placid, and went into the state of repose in which we first found him.

I learnt, on inquiry, that when only twelve years of age, being at school, he was attacked, after some over exertion, with haematuria; and this had recurred several times since, with very copious flow of urine, and a very frequent desire to pass it, so that he was called up three or four times every night. On one occasion, a small calculus had passed, which it is believed was composed

of lithic acid, and he had been subject to great headache and constipation of bowels.

About eighteen months ago, Dr. Prout saw him, when labouring under an aggravation of his symptoms; and at the time his attendance was discontinued, the urine was still very coagulable, in which condition it always remained. About three weeks ago he had attended a funeral, and was much exposed to cold; since which he had been obviously worse, though never kept from business. He was seen by Mr. Odling about ten days ago, who found that he had suffered more headache than usual: bowels constipated: tongue brown, and loaded. He was ordered leeches to the temples, took purgatives, and got so much better, that on Saturday the 19th he was occupied in some business, which required great exertion both of mind and body, and exposed him to the cold; and he found himself so much confused, that he retired to bed; and when he was found there, about nine o'clock, he was affected with a most intense headache, vomiting, and a total loss of sight. Mr. Odling, seeing him in this state, got a large number of leeches; but whilst he was in the act of applying them to his temples, a severe fit came on, of an apoplectic character, in which the patient's countenance became dark and suffused, and his breathing stertorous. He was bled freely from the arm; and this was repeated three times during the night; but he experienced two more fits, like the first. In the morning, Dr. Prout saw him, and ordered cupping from the loins; and whilst this was being done, a fit occurred. On the Tuesday, fits, assuming more the character of epilepsy, occurred; in which the left side, which had remained weak after the first fits, was convulsed. On Wednesday, the fits returned; but it was evident that the mind was unimpaired during the convulsion. On that night they were frequent; and on the following day not less than twenty occurred. On Friday the 25th, the day on which I was called, they had recurred at intervals of about an hour, and were rapidly increasing. At eight o'clock in the evening, he became quite insensible; but he lived, with frequent convulsions, till two o'clock on Saturday morning: thus lingering nearly a week from the first appearance of the severe cerebral disease; during the last five days of which time, it was necessary to draw off his water every eight hours.

No examination was permitted in this case; but it is scarcely to be doubted what would have been the character of the morbid appearances. In this instance, the disease had, in all probability, existed for a period of four years, before it proved fatal.

For the particulars of the following case I am indebted to Mr. Weatherfield; and I give it in his own words. The kidneys presented the most perfect specimens of the granular contracted variety of the disease; and Dr. Babington has given me a specimen of the nitrate of urea, obtained by Dr. Barlow from the fluid of the ventricles of the brain.

CASE IV

Albuminous Urine—Death with Convulsion—Kidneys granulated.

‘ABOUT the month of December 1831, I was consulted by Mr. J. G. He was then suffering under dyspepsia, accompanied with frequent attacks of pyrosis: his complaints, he then told me, had been of long standing. I ordered him a few doses of blue pill, rhubarb, and magnesia, which relieved the most troublesome symptoms: and I did not see him again until August 1832, when, from a slight injury, fungous excrescences arose on the extremities of two fingers, which, for a time, resisted all remedies, pouring out a considerable quantity of watery discharge, of a peculiarly faint odour: the application of Goulard-water, with pressure, the patient taking at the same time alterative medicines, at length healed these wounds in the September following.’

Sept. 1833. At this time, a total change had taken place in all Mr. G.’s symptoms: he had for some time lost the dyspepsia and pyrosis; his appetite was good; and, to use his own words, he could digest any thing: but complained of pain and throbbing in his head, intolerable thirst, huskiness in the throat, swelling of the legs towards night, and of the face in the morning: his pulse was now hard: tongue covered with a creamy coat: urine very abundant. He was advised to be bled; but he neither submitted to that, nor pursued any plan of treatment steadily. He continued much in the same state, till February 1834; when the pain in the head became less frequent, but more severe, returning generally once a week, attended with distressing vomiting: the oedema of the face and extremities somewhat increased: there was now, also, some fluid in the cavity of the abdomen. Soon after this, he took a long journey into the country, where he underwent great fatigue, and suffered from a more severe attack of head affection and vomiting than before; which induced him to return to town, and consult Dr. Babington, which he did on the 26th of March. After a very careful and patient investigation of the case, Dr. Babington, having tested the urine, and finding it to contain albumen, declared it his opinion that the kidney was the seat of disease. He was ordered to take alterative mercurials and tonics; and to be cupped over the region of the liver, where he complained of pain, increased upon pressure. The following week he saw Dr. Babington again; when he complained of noise in the left ear, and slight numbness of the right hand and foot: the pulse at this time was feeble. Dr. Babington, however, ordered blood to be taken away, if any aggravation of symptoms should occur. On the morning of the 5th of April he was attacked with epilepsy; and a medical gentleman living near immediately bled him. The pulse rose wonderfully, and continued so strong as to induce us to repeat the bleeding the next day; which, together with purgatives, subdued the convulsions for a time. On the 11th of April, however, he was suddenly seized with another fit; which returned at longer or shorter intervals, until the following day, when he sunk.’

SECTIO CADAVERIS

‘The membranes of the brain, particularly the pia mater and arachnoid, much thickened; more than two ounces of water

in the ventricles; the brain being altogether firmer than usual: the septum lucidum thickened and tough: plexus choroides paler than usual.'

'The lungs were emphysematous; the air-cells much enlarged, and ruptured.'

'The heart rather larger than usual; the left ventricle somewhat thickened; and the semi-lunar valve slightly ossified: some water was found in the cavity of the chest.'

'All the abdominal viscera healthy, except the kidneys; which were much smaller than usual, of a grey and granulated structure.'

For the details of the following case, I have to acknowledge the kindness of Dr. Babington and Mr. Wheelwright, under whose care it was, and by the former of whom the history has been drawn up: and its interest is somewhat enhanced, by the fact, that the urine had not been examined, and that nothing had occurred which could, under ordinary circumstances, have led to a suspicion of the kidneys being affected: yet the insidious disease had been silently making its way, till it terminated with successive symptoms, so precisely similar to those of the other cases I have related, that the examination after death, which shewed that the kidneys alone, of all the organs of the chest and abdomen, were diseased, served at once to explain the otherwise anomalous train of events; and to account for the little benefit derived from remedies, which, in the present state of our knowledge, appear to be altogether powerless in this stage of the disorder. This case affords a strong example of the disease of the kidney passing to its most fatal period, without the slightest symptom of dropsical effusion—a state of things, which, above all, is apt to throw us off our guard, and lead us to overlook the derangement of the kidney: and it points very forcibly to the value of the information, which is probably, in many cases, to be acquired by no other means except the careful examination of the urine.

CASE V

Death, with Convulsion and Coma—Kidneys granulated.

'Mr. P., an athletic young man of 25 years of age, by trade a plumber, came to Mr. Wheelwright, on the 6th of December last, complaining of dyspepsia, with

some degree of dimness of sight. These symptoms being referred to biliary disorder, some aperient medicine, followed by bitter tonics, was administered; and in the course of two or three days, Mr. P. returned to his employment. On the 24th, he was again complaining; and a third time, on the 3d of January, when he remained under medical treatment until the 12th; and even then continued so much indisposed, that he was advised not to return to business. He did so, however, and continued superintending some plumbers' work on the top of one of the public buildings until the 21st. On that day he was much exposed to the weather; and returned home ill, as if from cold. In the middle of the night he was seized with a fit of a convulsive, but somewhat anomalous character; for he required restraint on the part of his attendants, and yet was not altogether deprived of consciousness. Mr. Wheelwright saw him two or three hours after the commencement of the attack, at five o'clock on the following morning; at which time he was totally blind, had a very powerful and quick pulse, and was suffering from intense pain across the forehead. He was immediately bled copiously; and was sufficiently sensible to hold out his arm for the purpose, and to recognise Mr. Wheelwright. A brisk cathartic was also exhibited. In the course of the forenoon, he was again bled; and the pain continuing, he was cupped in the afternoon. I saw him, first, on the following day, when there was still considerable arterial power, which was seen, as well as felt, in the branches of the temporal artery: the pain across the forehead, though diminished, was not removed; and the blindness continued. As our patient had already lost upwards of forty ounces of blood, we determined to try the effect of mercury, to the extent of producing mild salivation. On the 25th I visited him again; and found his vision somewhat improved, so that he could distinguish the number of fingers held up before his eyes: the pain of the head was greatly relieved. A topical abstraction of blood, by leeches, was, I think, directed on this occasion; and this was to be followed by the application of blisters to the temples. No signs of salivation yet appeared, and the mercurial plan was continued. I did not see our patient again until the 29th; when I found him complaining greatly of the soreness of his mouth, which had increased so much as to engross all his attention. What particularly claimed our notice, however, was a degree of drowsiness, which seemed gradually increasing, and could not be accounted for by any circumstances in the treatment. The mercury had been discontinued for the last two days; the bowels had acted freely; and the urine had all along appeared of good colour and in sufficient quantity. A chloride-of-soda gargle, and some mild tonic medicine, were prescribed. The drowsiness, however, gradually increased from this time, until a state of complete coma was established, which terminated fatally on the following day. On examination of the body, within a few hours after dissolution, a small quantity of fluid, certainly less than half an ounce, was found in the ventricles of the brain; and there seemed to be some softness in the substance of the brain generally, about its basis; not, however, to such an extent as to constitute a degeneration in its structure. The optic nerves seemed quite healthy, throughout their whole tract. All the viscera, as well of the abdomen

as of the chest, were perfectly healthy, except the kidneys. The peritoneal and proper tunic of these were thickened and opaque; and when stripped off, exposed the surface beneath, rough, and of a grey mottled appearance. This diseased structure was seen, on section, to extend throughout the substance of the organ: both kidneys were equally affected. The urine was, I regret to state, not particularly examined in this case; for there had not been the least tendency to dropsy during the progress of the disease, nor any complaint of pain in the loins to indicate its seat.'

The report of the following case is copied from the Museum Note-book; where, I believe, it was written by Mr. King.

CASE VI

Albuminous Urine of four or five years' continuance—Death with Convulsion and Apoplexy—Kidneys degenerated.

'MARY BROOKS, aged 24, was admitted, under the care of Dr. Bright, into Charity's Ward, where she had been two or three times before. For four or five years she habitually passed coagulable urine. Her blood had been analysed, both by Dr. Prout and Dr. Babington, and had been found to contain urea: during this time, she had been repeatedly and greatly anasarcaous. Latterly, her head had become affected, and she laboured under fits of an epileptic character. Her complexion was pale; but she appeared well nourished, and less sickly than could have been anticipated from the nature and continuance of her complaint. A few days before her death, she called in the ward, to see the sister: whilst there, she was seized with a fit, from which she never recovered, but remained insensible to the time of her death. It had never been remarked that her pulse was irregular.'

SECTIO CADAVERIS

'The cranium was unusually thick, with a general but slight irregularity on its surface: there was a small exostosis, apparently of much closer texture than the rest of the scull, about the size of the end of the little finger, situated at the anterior part, near the falx; and there were one or two much smaller ones nearly in the same situation: beneath the arachnoid was a copious effusion of serum. The cineritious substance of the brain was somewhat injected. The medullary likewise contained more than the ordinary quantity of blood, occasioning a slight marbling, visible on its incised surface: in other respects, the substance of the brain was healthy; but the lining membrane of the ventricles was rather thickened; and in each plexus

choroides there was a small defined body, nearly of the size and form of a small horse-bean, which was of a light yellowish colour, and of a moderate degree of firmness: each appeared to be enclosed in a cyst; and the material within was somewhat grumous, especially near its centre. There was merely the ordinary quantity of fluid in the ventricles. The pituitary gland was perfectly healthy. The pleurae were free from adhesions. There was some appearance of inflammation in the left lung, posteriorly. There was likewise some little appearance of pulmonary apoplexy in the right lung; and also some appearance of inflammation, but to a less extent than in the left. The pericardium was healthy. The heart was of moderate size, and likewise healthy, with the exception of a little thickening of the mitral valve: the aorta was healthy; but there was a minute white spot beneath its lining membrane, near its origin. The peritoneum was generally healthy, but there were some old and very partial adhesions, especially in the pelvis: one of these was so situated, as to render internal strangulation a possible event. The stomach and intestines appeared to be healthy; but the solitary glands in the duodenum were rather large. The liver was healthy; but there was a partial thickening of its tunic on the convex surface, connected with an old peritoneal adhesion. The pancreas was healthy. The kidneys were small, rather granular on their surface, of a very firm and dense texture, and of a light colour. From the far-advanced state of the white deposit described by Dr. Bright, their small size was evidently the result of contraction; the cortical part being greatly reduced in thickness, and the surface lobulated, as in the foetus. The uterus was healthy, but apparently in a state of menstruation. The ovaries were rather plump, and their tunics generally smooth, having one or two equivocal appearances of cicatrices: a cyst, about the size of a hazel-nut, and of a dark colour, projected from near the end of one of them: on being cut into, one was found to contain extravasated blood, part of which was of a dark venous colour, and apparently but recently coagulated; whilst a smaller portion was of a much firmer consistence, and of a lighter and brownish colour, indicating a previous extravasa-

tion: it was evidently the result of derangement in one of the vesicles of De Graaf: there were two or three corpora lutea in one or both ovaries.'

This young woman was living at the time I published the Second Volume of my Reports (1831); and I have there said: 'In one very remarkable case, where the albuminous condition of the urine has constantly existed as far as I know, from frequent experiment for above three years, the quantity of urea in the blood is very considerable; yet the patient, who is a young woman, enjoys very tolerable health, and has a healthful appearance between the severe attacks of anasarca, of which she has been the subject; but has latterly been affected with frequent fits, which assume a decidedly epileptic character. The results of chemical analysis, conducted by my friend Dr. Babington, were, that the urine did not contain one third of the urea which it does in health, while about one per cent. of albumen supplied its place. The serum of the blood was remarkably light, in consequence of its deficiency in albumen; having a specific gravity of 1021, instead of 1030; and the quantity of albumen in 1000 grains of serum amounting, after careful drying, to only 50 grains; whereas from 80 to 100 parts in 1000 is the usual proportion in healthy serum; and it contained fully as much urea as the urine did, the 1000 grains yielding nearly 15 grains of that substance.'

As these observations were made during the life of this patient, the circumstances of the examination after death possess great interest. As far as one case can go, we have the full confirmation of the coincidence of the various symptoms, with the peculiar degeneration of the kidneys, which was anticipated from the long continuance of the disease: we likewise perceive, that there is at least no necessary connexion, although there are such frequent coincidences between hypertrophy of the heart and the disease of the kidneys, even where it is attended by the presence of urea in the blood, and has proceeded to the hardening and contraction of the organs. With regard to the question of cerebral symptoms, that is left untouched by this particular case; because there was a small bony exostosis from the scull, which

might have been the source of the epileptic seizures; though very probably this source of irritation would have remained innocuous, but for the state of the circulation induced by the constitutional disease.

CASE VII

Albuminous Urine—Sudden Death—Kidneys mottled.

MARIA H—, aged 21, was admitted, under my care, into Guy's Hospital, Feb. 25, 1835, labouring under most profuse general anasarca, with coagulable urine. We learnt, that the catamenia had come on at the age of 14, and continued regular for three or four years; after which, she became the subject of chlorosis, with irregular menstruation. It was now just fifteen months since she observed that her legs began to swell, after having over-exerted herself in walking: this, however, only continued a week; and for two months she was free from all anasarca. About that time she caught cold; and the swelling had continued ever since, varying from time to time, both in situation and degree. The urine was exceedingly coagulable; and she was subject to most intense headaches, often attended with severe vomiting.

This young woman remained under my care for many months, varying almost every week in a remarkable degree, and subject to repeated relapses of anasarca, which she almost always ascribed to some slight exposure, generally to the draught of an open window. She was kept on the mildest diet; chiefly milk, and beef-tea and arrow-root. The remedies employed were principally diaphoretics; amongst which, the warm bath, the hip bath, and Dover's powder were the most important. From the beginning of May to the beginning of September, I confined her entirely to her bed; and frequently obtained a very perspirable state of skin, sometimes almost in excess. This treatment was often suspended and varied, owing to the severe attacks of vomiting. After a time, the catamenia began to return with tolerable regularity. The flow of urine was often very abundant, amounting to four pints in the twenty-four hours, and varying somewhat in the extent of its albuminous qualities, but never quite free from albumen: and at length, the anasarca swellings being reported as entirely gone, she became very desirous of returning home. I however detained her several days, till her mother had provided her with a flannel dress, to wear constantly close to the body; and then, with many precautions, she was to leave the hospital on the following day, Sept. 29: but that very night she died almost suddenly, having only complained in the evening of a severe pain in the loins.

SECTIO CADAVERIS

Copied from the Museum Note-book.

'The only noticeable deviations in the head were, slight serous and clear effusions in the pia mater, and a very remarkable

softness of brain: it was not fully dissected. No fluid in the ventricles. The vascularity of the brain substance was considerable. Larynx not examined. The thymus was as large as an egg, flat, and fleshy. The serous cavities were almost healthy, and reddish.'

'The heart was of a full healthy size, muscular, and well contracted. Both ventricles were pretty certainly, in some degree, hypertrophic: the right auricle was fully distended; the right ventricle contained but little. The pulmonary valves acted firmly. The tricuspid also acted well.'

'The blood was well coagulated, fibrinous, and firm. The lungs were everywhere crepitant: the right was of a dark red, as if from excessive injection, with a little fulness of the larger vessels. I could detect little or no emphysema, or other alteration of parenchyma: the left lung was, in addition, slightly oedematous, chiefly towards its upper part. The bronchial tubes were a good deal injected, and contained some fluid and pasty mucous.'

'The liver was of a good size; yet seemed loose, as if collapsed: it was darkish, especially inferiorly, turgid, and the normal structure indistinct; the secretion, watery, and mucous.'

'The spleen half as large again as natural, coarse and fleshy.'

'The kidneys were somewhat larger in proportion, of a pinkish yellow white colour, yet injected: the cortical columns full and coarse, and the surface slightly speckled with still more opaque white spots, minute and flocculent: the tubular masses a little less pale. The tunics were pretty healthy in appearance. The surfaces of the kidney were even, but marked by slight salient linear interlobular boundaries: the whole substance was firm, and perhaps had begun to contract.'

'The bladder contained a good quantity of urine, not very pale. The ovaries were enlarged and round, and darkly injected: their tunics were thin and scarred: many large fluid cysts were found within. The Fallopian tubes healthy: the uterus was lined with a thin layer of grumous blood, firm and adherent.'

'The digestive canal was everywhere somewhat fleshy and

oedematous: its peritoneum opaque, and rather pink. The lining of the stomach was still more injected.'

CASE VIII

Albuminous Urine—Death with decided Cerebral symptoms, after the disease had probably existed for two years.

JEREMIAH COLLINS, aged 50, an Irishman, who has served seven years in the navy, and for nineteen years been a common labourer, was admitted into the Clinical Ward, Feb. 3, 1836. Although he had experienced casual illness before, he considered himself quite well, till two years ago, when he had occasion to drive a cart during the whole of a very rainy day, and was wet through from morning till night. He drank a great quantity of spirits on that day, but not sufficient to produce intoxication. The next morning he found his abdomen a little swollen; penis and scrotum oedematous; and he suffered pain in the head. He has never since been well, having been frequently laid up; and taking medicine, and working, in the intervals. His mouth, he says, has often been made sore; and he enumerates four separate times, under four different medical men, all of good name and repute, who had put him under mercurial courses, without any marked relief.

The present symptoms are, occasional pain and heaviness of the head, felt principally at night; mouth still under the influence of mercury; cheeks puffed; difficulty of breathing, especially whilst in the horizontal posture; cough, which is most urgent at night; some expectoration; sound of heart unnaturally diffused; palpitation on slightest exertion; abdomen considerably distended, and fluctuation distinct; penis and scrotum, together with both upper and lower extremities, oedematous; pupils dilated, but not insensible to light: vision in both eyes has been imperfect for about eight days, so that he cannot recognise any one at the distance of four or five yards.

Feb. 4. Does not seem so well as he was yesterday. Complains of a sensation of fulness in the abdomen. Fainted this morning at eight o'clock; after which he perspired freely. Bowels open once; motion costive: tongue covered with a brown fur in the centre, white at the sides: pulse 88, rather sharp, but compressible: urine slightly acid, of pale colour, coagulable; and becoming very much like milk in appearance, on the application of heat.

Applicetur Emplast. Cantharidis Nuchae.—Habeat Pulv. Antimon. gr. v. ter die.—Ext. Col. ̄ Cal. gr. xv. statim.

5. Has slept well, and his bowels have been freely opened. The swelling of the penis, scrotum, and legs has nearly subsided: pulse 112, weak.—He was put upon the milk diet.

This man rallied a little occasionally, and the oedema was sometimes much diminished; but, upon the whole, he seemed to get weaker, and the antimonial powder was given up for the camphor mixture with gentle diaphoretics; and a small quantity of wine was allowed him.

22. He feels better, and the cough and expectoration are much less. One

copious healthy motion. About four pints of urine passed in the twenty-four hours, rather dingy. Skin moist: pulse 80.

At 2 o'clock, fainted, and was afterwards sick: vision becoming more indistinct, and the articulation more difficult. He was again sick about 9 o'clock.

23. Complains of giddiness and of drowsiness, but of no particular pain in any part. Dimness of vision increases: he is now only just able to distinguish a pen held in the hand at the distance of a yard: has cold shiverings frequently. The action of the heart is so much increased by the exertion of raising himself in bed, as to be heard over every part of the chest distinctly. Pulse 80, and soft, while he is lying quiet: bowels not open since yesterday: a large quantity of urine has been voided.

The symptoms, which had been increasing upon him, made rapid advances. In the evening, he became comatose, and died the following morning. No examination of his body could be obtained.

CASE IX

Coagulable Urine—Death from Peritonitis—Kidneys much diseased.

H—M—, aged 43, was admitted into the Clinical Ward, Dec. 16, 1835, with general oedema, sallow countenance, and pale lips. He passed a large quantity of urine, which was highly coagulable; and he had frequent calls to void it. He had considerable cough and expectoration. The account obtained of him was, that he had been a tailor in the corps of Marines for twenty-three years, and had lived a very intemperate life: he had, however, enjoyed good health generally, but about a year ago had acute rheumatism and dropsy; since which time he had been less healthy, suffering frequently from cough, which had greatly increased during the last ten days.

He was cupped at the scrobiculus cordis, and had half a grain of elaterium administered. The report of the following day was, that he had expectorated much muco-purulent matter. He had passed several very watery stools. Urine plentiful; and he had fourteen calls to pass it: it was greatly coagulable, both by heat and nitric acid: of specific gravity, 1020. Pulse 84, weak, but regular. Attention was chiefly paid to the cough, and a local affection of the scalp.

On the 22d, six days after admission, the daily report was—Bowels opened three times: motions of a dirty white colour, and first beginning to get pale two days since. No pain in the loins, but a pain over the region of the liver: no oedema in any part of the body: pulse 88: cough troublesome. The urine remained unaltered in its character: his bowels were freely acted upon by frequent doses of calomel and colocynth: he was cupped over the region of the liver; and he took salines and diaphoretics. On the 27th, there was a slight return of oedema; but this again disappeared; and on the 3d of January it was reported—'Bowels open three times: cough and expectoration almost gone: sores on the head nearly healed.'

On the 8th of Jan., considerable oedema returned in his legs and arms; but he chose to leave the house, with a view of returning to his occupation as a tailor; and accordingly went, without any intimation of his intention. When

I heard that he was gone, I expressed my regret, and stated my fear of the result; but I was certainly not prepared to expect that within three days we should be requested to come to examine the body.

We learnt, that, on leaving the hospital, he walked home, beyond the town; had a single pint of porter; and expressed his intention of resuming his employment next day: but in the evening, he complained of pain in the head, and most intense and exerceiating pain in the abdomen; which his sister-in-law said she could compare to nothing but labour-pains rapidly succeeding each other; and he was at times delirious: he likewise suffered from excessive shivering and coldness; so that he had a large fire made, and sat before it; opening the blanket, in which he was enveloped, to admit the heat. This state of things continued more or less through the whole of the following day and night; and on the next day, about two o'clock, having for two hours before his death become apparently blind, he died; little more than forty-eight hours having then elapsed from the time when he left the hospital.

SECTIO CADAVERIS

The arachnoid was slightly opaque, particularly along the middle of the sulci of the convolutions; and there was rather more fluid than natural, both beneath it and in the ventricles. The lungs were healthy and crepitant, without adhesion to the pleurae: the heart large and muscular, but the valves healthy. The abdomen contained a full pint and a half of serum, evidently the result of acute inflammation: it had nearly the consistence of very thin arrow-root or gum-water, opaque, but not puriform. The liver was quite healthy in its structure; but had an unnaturally light and opaque appearance, owing to a thickened condition of its peritoneum. The kidneys were diseased to the utmost degree: they adhered very strongly to their tunics; were lobulated in shape, large, and almost white, with a slight tinge of yellow. When cut into, they were almost cartilaginous in consistence, shewing the same perfectly white colour, with specks of yellow throughout the cortical part; the tubuli presenting a very strong contrast, by their deep red colour. Of these kidneys a very beautiful model was executed in wax, by Mr. Town; and is deposited in the Museum.

CASE X

Albuminous Urine—Death from Peritonitis—Kidneys diseased.

W. BURFORD, aged 21, was admitted into Guy's Hospital, under my care, Sept. 23, 1835, the subject of general anasarca, with urine dingy in colour,

acid, and very coagulable by heat. He complained of some pain and uneasiness in the loins, and his skin was hot and dry. He was put upon the use of antimonials and Dover's powder; was kept strictly in bed; was cupped on the loins; and subsequently had a seton in that part. It soon, however, appeared that his stomach was peculiarly irritable; and it was necessary to change the remedies, as also to relinquish the milk diet. He made some progress for a time, but it was neither steady nor satisfactory; and in the second week of January he was seized with acute peritonitis, under which he sunk in three days.

SECTIO CADAVERIS

The heart was large. The lungs gorged with blood and serous effusion. The cavity of the pleura nearly obliterated by both old and recent adhesions: the small cavity which remained was occupied by fluid. On separating the lungs from the walls of the chest, the costal pleura was found completely covered by an adventitious membrane, firm, hard, and even cartilaginous, in some places half an inch thick. The surface of this bore evidence of a more recent softer deposit, which extended upon the diaphragm and surface of the lungs. By using considerable force, this adventitious layer could be stripped off, leaving the surface of the costal pleura entire. The abdomen shewed marks of extensive recent peritonitis, and contained a quantity of an opaque tenacious fluid. The parietes were, in several places, adherent to the viscera, by means of a false membrane, similar to that found in the chest, but neither so thick nor so hard. This adventitious deposit covered the liver, gall-bladder, stomach and duodenum, and arch of the colon, glueing them together, and connecting them to the abdominal walls. The small intestines and lower viscera were tolerably free from disease, but exhibited on their surface occasional patches of the false membrane described above. Two small transparent cysts were attached, by a long very slender peduncle, to the mesentery. The kidneys were very large, and, though decomposition had advanced far in them, were evidently affected with the diseased mottled structure.

Nothing can be more striking than the similarity which is observable in all these cases. I am not aware of any disease

in which the character is more completely preserved, or in which the symptoms more clearly mark a specific form of malady. In the first eight cases, the termination, as well as the progress of the disease, bore the most perfect resemblance; and the peculiar train of cerebral symptoms, by which their advanced stages have been attended, have little analogy, when taken as a whole, with the symptoms of any other cerebral affection. The two last cases differ from the rest only in their mode of termination; and I have related them as the two most recent illustrations of a very frequent result of the disease.

Of the insidious nature of this malady, and its fatal tendency, these cases afford a pretty convincing proof: and the fact, that so many of these have come within my own observation in a limited time, would be tolerable evidence of the extreme frequency of the disease. Yet the cases I have now detailed, but more especially the many more which the length of the present communication obliges me to defer, are chiefly such as I have, without any intention of publication, chanced to enter in my note-book, and form but a small portion of those which I have seen: but, in order to obtain a more accurate idea of the actual prevalence of the disease, it is necessary to have recourse to another species of evidence; and accordingly, in the winter of 1828-9, I instituted a series of experiments, by taking the patients promiscuously, as they lay in the wards, and trying the effects of heat upon the urine of each, and at the same time employing occasionally other re-agents. The whole number I took amounted to 130; out of which no less than eighteen proved to have urine decidedly coagulable by heat: and in twelve more, traces of albumen were found: giving, therefore, an average of at least one in six, if not one in four of the whole number. In order to shew how the experiment was made, and the nature of the table I constructed, I will introduce six consecutive cases out of a male, and six out of a female ward; and it is worth remarking, that in every instance, where the result allowed us to ascertain the state of the kidneys, it corresponded with the diagnosis yielded by the table. Those who had albuminous urine were found to have more or less of this disease in the

kidneys; whilst those whose urine did not coagulate by heat had kidneys without disease.

<i>Name</i>	<i>Age</i>	<i>Disease</i>	<i>General State of Body</i>	<i>Character of Urine</i>	<i>Effect of Heat</i>
John Marshall	45	fistula and phthisis	slightly emaciated	high coloured, clear, slightly bilious	no change.
William Greatrex	51	hydrocele in inflammatory state	heated, and feverish	high brandy colour, looking quite red in large quantity	a few solid flakes first formed, which dissolved, and then the urine became quite clear.
John Jones	15	lepra vulgaris	healthy	slightly clouded	clear.
Thomas Parry	36	peritonitis subsiding	reduced	natural, except a very slight cloud	no change.
Cornelius Harris	22	mercurial rheumatism	..	light-coloured	no change.
John Freeman	40	carcinoma of penis affecting the inguinal glands	pale and cachectic	fetid, with a cloud	opaque first, and then forming considerable flakes.
Mary Brooks	24	anasarca, from which she has scarcely been free for three years	tolerably healthy-looking young woman, frequently having a good colour, and able to do work of ward	light-coloured dingy	coagulates into a complete curd, the thin part then looking like clear whey.
Marian Challon	29	tic dolooureux, and nervous affection of muscles of neck	slight in make	light amber colour	no change.
Mary Ann Williams	24	diseased ankle	..	light topaz colour	no change.
Elizabeth Welch	55	asthma	dingy, thick asthmatic complexion	deep topaz colour	no change.
Ann Simpson	13	wound in knee with glass eleven months ago	unhealthy aspect	light straw colour	no change.
Ann Macdonnal	28	suffered from two attacks of an apoplectic character	not unhealthy, no local paralysis	light straw colour, with a tinge of red	no change.

From amongst the patients mentioned in these two abstracts from the more extensive tables, three, within a short time,

afforded the opportunity of ascertaining the condition of the kidneys: thus in John Marshall, whose urine did not coagulate, the lungs were full of tubercles; the liver was granular, the kidneys were healthy: in John Freeman, whose urine coagulated, the kidneys were of a pale drab colour, with decided deposit of white matter: and in Mary Brooks, whose urine was known to have coagulated for a long time, the kidneys presented the most marked specimen of the mottled disease.

In the year 1832, my friends Dr. G. H. Barlow and Mr. Tweedie undertook to make for me a still more extensive experiment, extending to nearly 300 individuals; and the result was, that above one in eleven were decidedly affected with the disease. In the year 1835, my pupil, Mr. John Anderson, then officiating as clinical clerk, made, with the assistance of Mr. Gorham, a similar experiment on 141 patients; and a portion of the accurate table he drew out was detailed in a well-digested paper read before the Physical Society of Guy's. In this experiment, the proportion of cases considered albuminous amounted to above one in six; and lastly, a more extended investigation of similar cases, made within a few weeks, and accompanied with a statement of many interesting and valuable results, from the pen of Dr. Barlow, will be found in the next number of this work.

The average of cases affected with the disease under consideration varies much, as might be expected, in different trials; and some explanations, arising from the experiments of Dr. Barlow, of which I have just spoken, will render it highly probable that the average I had taken, amounting to one in six, went beyond the reality: but with every deduction, it still remains an incontrovertible fact, that the disease, in its various stages, from its earliest functional derangement to the confirmed organic malady, is one of the most frequent, as well as of most fatal occurrence: and I think I am fully borne out in the estimate, which I made at the commencement of this paper, that not less than 500 deaths annually occur in this metropolis, from this single disease.

In the TREATMENT of this formidable disease, in the early

periods of its attack, I look to the circumstances with which it is most frequently connected—I mean the suppression of the perspiration, and the consequent general inflammatory condition—as most important: and by the removal of these, if the case should come under treatment before the morbid habit is established, and before the system is greatly reduced, I believe we may frequently remove the present danger: and in this state of the disease, active bleeding is frequently a most important part of the treatment. I doubt whether we have it in our power, as yet, even at the earliest periods, to destroy the liability to relapse, or overcome the morbid tendency; but at all events, the management of the early stages of the disease is easy, when compared with the treatment in its more confirmed and protracted forms. There is no doubt that the observations of Dr. Osborne, in his late valuable publication, are excellent, as regards the incipient disease; but I cannot, from my own experience, entertain a hope, that diaphoretics are capable of curing any large proportion of confirmed cases, even when we can bring these remedies to act forcibly and steadily. I have, on the contrary, not unfrequently found the skin exercising its function in a very tolerable degree, without any relief being afforded to that symptom which is, of all, the most important—the albuminous and otherwise altered condition of the urine. Till this symptom be removed, the disease certainly exists: and even when it is removed, it is often absent but for a short time, and it is, for many years, liable to return. It can never be sufficiently impressed upon the minds of practitioners, that the anasarca, which so often occurs in conjunction with this disease, is but a symptom. The disease may exist in all its force, and may be fatal, with its insidious and sudden attacks, without the effusion of a single drop of fluid into the cellular membrane, at any period of its course; and still, more frequently will fatal instances be found, where the anasarca, having existed, has entirely ceased;—facts which have been sufficiently demonstrated by the results of the experiments, on a large scale, made at Guy's Hospital, as well as by several individual cases, both already in the hands of the profession, and brought forward in

the present publication. The very interesting communications by Dr. Christison, and the observations of the zealous and deeply-lamented young physician, Dr. James Gregory, and of my friend Dr. Alison, who all very early turned their attention to this disease, have assisted to substantiate this, as well as many other points connected with its history.

The diaphoretic means, to which I have generally had recourse, have been, antimonial powders, the compound ipecacuanha powder, and the liquor ammoniae acetatis; together with close confinement to the warmth of bed, the occasional use of the warm bath and frequent fomentations, and large linseed-meal poultices to the loins and abdomen. My friend, Dr. G. H. Barlow, has thought that he has obtained almost a specific effect from the tartarized antimony: and I have certainly found it, by his recommendation, a useful adjunct to the diaphoretic mode of treatment: but in Dr. Osborne's publication, which very lately came into my hands, all the means of promoting the important function of the skin are so fully laid down and illustrated, that I cannot do otherwise than refer the reader to his excellent publication. Possibly, my want of success in producing perfect cures may depend on a less vigorous adoption of the necessary means arising from a less sanguine expectation in the result; and, as regards the hospital patients, may depend upon the difficulty of making such strict arrangements as will preclude the probability of the surface being chilled: for I have often perceived, that in this disease, as in phthisis, the necessary and generally most salutary ventilation of large wards was productive of a certain degree of evil; and I have thought that I have distinctly traced, as in the case of Maria H—— (Case VII), the successive recurrence of the anasarca, to the effects of almost unavoidable currents of cool air passing over the bed.

With a view to keeping up the action of the skin, I have been very careful in pointing out to those who have not been confined by the disease, the necessity of wearing an inner dress of flannel at all times. I have suggested the propriety of a residence in some more agreeable climate; but I have never had an opportunity of giving a fair trial to this measure; the disease being,

unfortunately, most apt to occur in those who are least able to submit to the absence from business, and the expense incident to a residence abroad. In a case which I have related above, I have little doubt that residence in a more northern climate, adopted by the patient, without consultation, was instrumental, aided by imprudent exposure, in hastening the fatal result; and I feel confident, that, in more than one case now under my care, the bad consequences of the disease are kept at bay by rigid adherence to the use of flannel dresses. Perhaps, to give full effect to a change of climate, some decidedly southern abode should be chosen; and a residence in one of the more healthy of the West-India islands, as St. Vincent's, would probably be beneficial.

With regard to the abstraction of blood as a remedial means, it is chiefly in the commencement of the disease that it is decidedly beneficial; and at that time, combined with diaphoretics and strict confinement to bed, general bleeding, freely practised and quickly repeated, is, I believe, most valuable: I have frequently employed it at much later periods, and with temporary advantage. But when we call to mind the constant loss of albuminous matter which the system is sustaining by the kidneys, and the peculiar pallid hue which the patient usually assumes, we shall pause before we venture to afford a temporary alleviation, at a still further expense of the more nutritious and stimulating portions of the blood. Yet there is no doubt, that, even in the most-advanced stages, a strong tendency to inflammatory action, particularly of the peritoneum, often displays itself; and, under these circumstances, nothing but active depletion can meet the emergencies of the case. When the head is affected with pain, throbbing, or giddiness, and the senses are becoming less acute, the indication is by no means so obvious; and although we may believe that a slow inflammatory process has often been going on, yet this is, in many cases, greatly to be doubted; as the symptoms, and many of the appearances after death, admit of a ready solution, from the state of debility and anaemia to which the patient is reduced. Cupping from the nape of the neck generally relieves the symptoms for a time; but

blisters are less likely to prove injurious; and perhaps a seton would be found advantageous, though of this I have no experience. When the loins are decidedly affected with uneasiness, or when pressure on the kidneys excites pain, I have known the successive daily application of a few leeches attended by the best results, and I have occasionally introduced a seton.

There is another mode of depletion, which, though it may at first appear but a temporary and mechanical expedient, I am by no means disposed to leave out of consideration: I mean, the discharge of the fluid from the cellular membrane, where anasarca exists, by punctures. It is plain, that when the meshes of the cellular membrane are distended with serum, great obstruction must be given to the capillary circulation; and by emptying them, we afford the most effectual relief to the larger vessels and to the heart.

It is this interrupted circulation in the extreme vessels which is one great source of the death-like paleness which is observable on the parts distended with anasarca, and which often, in this and other forms of oedema, takes place locally, while parts of the body not affected with the serous effusion maintain a more healthy colour; thus shewing, that it is not simply the effect of a general want of blood. It is of great importance that all attempts to draw off the serum by mechanical means should be most cautiously conducted; for the powers of repair are weak, and there is great tendency to erythematous inflammation. The mode which has generally appeared to me most eligible is the introduction of a needle into the cellular membrane, giving it a turn or two laterally, so as to break down a few of the meshes, and thus prevent the small orifice from closing too quickly. Three or four such punctures, made in the calf of the leg or the thick part of the thigh, will give egress to a large quantity of serum, and will often continue to discharge for three or four days. I once collected in this way, in the course of four hours, above forty-four ounces of serum; and the puncture continued to flow, affording the greatest relief. The operation should not be repeated for some days; or the part should be varied; as the punctures sometimes inflame, even after they

have appeared to heal. The spontaneous discharge from vesications taking place, owing to the inflammation of the surface, has sometimes afforded great relief. Dr. Barlow of Bath, who, with the wonted energy of his character, very early took an interest in the investigation of this disease, was kind enough to communicate to me several cases which occurred to him in the Bath Infirmary, so long ago as the years 1830 and 1831; and, in one of these, he calculated, that, for many days, a patient lost by this means some quarts daily; and the patient is believed to have recovered completely.

It is a very great question, how far the existence of albuminous urine contra-indicates the use of mercury. I have myself been led to think, with Dr. Blackall, that it is generally better to avoid the exhibition of this remedy; which opinion I find advocated likewise by Dr. Osborne of Dublin. Yet, amongst the communications of Dr. Barlow of Bath, he has furnished me with one or two cases, in which he has boldly used both mercury and diuretics; and the cases have been attended with more than an average success.

Dr. Prichard, in his very excellent address delivered at a late meeting of the Provincial Medical and Surgical Association, assures us, that for several years the question has been brought to the test of experiment in the Bristol Infirmary, whether mercury is injurious in all cases of dropsy with albuminous urine; and that it has been proved, in numerous instances, where the treatment advised by Dr. Blackall has totally failed, that the same cases have terminated in recovery, under a moderate use of mercurial remedies. The authority is great, and the appeal to extensive experiment cannot but ensure most respectful attention: yet I am strongly inclined to believe, that, whatever may be the exceptions under most cautious management, the use of mercury had better, as a general rule, be avoided. When I first published upon this subject, I stated that I had seen much decided mischief from the use of this remedy; yet that I had undoubtedly seen well-marked cases, in which the free use of mercury, even to complete ptyalism, had at least not prevented the patients from deriving great, perhaps even perfect relief

from the remedies with which it was combined: and, on a later occasion, I have observed, that I have seen the combination of mercury, squill, and digitalis, give present relief, and produce apparent cure: yet I am bound to say, that these cases are rare, while the instances of failure and obvious injury from this remedy are numerous. To illustrate this class of cases, I might refer to very frequent experience. The case of Jeremiah Collins, which I have given above, will serve as an example of what is continually occurring in the history of the lower classes; while the following case from private practice serves to shew, that it is not only those who are deprived of the comforts and conveniences necessary for the proper administration of mercury who seem to suffer from the mercurial mode of treatment, without deriving any obvious advantage.

CASE XI

I WAS requested, in the month of December last, to see, in consultation with the medical attendant, Mrs. B., a middle-aged woman in easy and comfortable circumstances, who, however, had not been sufficiently careful with regard to her mode of living. She was first made aware of the decided failure of her health about a year and eight months before, when anasarca shewed itself. She said she had, from that time, been under the care of various physicians; but had never derived any decided advantage, and was much worse than at any former period. She was now, indeed, the subject of the most general and profuse anasarca; and for several months past had experienced epileptic seizures. She was exceedingly drowsy, and had difficulty in lying down in bed. She passed about a pint of urine in twenty-four hours, which became a complete white curd on the application of heat. I found that various remedies had been employed; but above all, she entreated me not to put her under the use of mercury, which, she said, had been tried for a long time without any good effect, but was attended with the greatest discomfort, and followed by increased debility. I recommended her to take antimony and Dover's powder; to apply a blister to the nape of her neck; and to try an infusion of the uva ursi. Of the result of this case I know nothing; but have little doubt as to the event.

It may indeed be fairly urged, that, with such a list of fatal results before us, in which various remedies have been used, it is unjust to fix upon mercury the peculiar reproach of failure. I can only answer, that, in general, it had appeared to me, that

those who, in the confirmed forms of this renal affection, have abstained from mercury, have broken down more slowly under the disease, than those who have taken it to any extent, more particularly if they have persisted till its constitutional effects have completely manifested themselves. I believe, however, that, in the very early stages of the acute renal disease, mercury, given in combination with opium and antimony, and associated with bleeding, may be a useful means of reducing the inflammatory action: and I am still by no means inclined to despair of our arriving at the means of administering very minute doses of this powerful remedy, in such combinations, as to lead, by long continuance, to some degree of change in the morbid structure which has taken place in all the advanced cases; or to act more decidedly in promoting the absorption of the morbid deposit, if we shall ever arrive at a knowledge of the probable period when the morbid change is in its truly incipient state. I have hoped, in iodine, and in the hydriodate of potash, to find remedies adapted to the furtherance of the same object; but I cannot say that, as yet, my experience has borne out these hopes.

Purgatives have produced decidedly good effects in some cases, more particularly in reducing the anasarca; so that there has been reason to ascribe the chief relief, on several occasions, to their action. Amongst these, the various saline purgatives have been employed; and the combination of rhubarb with the sulphate of potash, assisted in its action by some purgative tincture. But the elaterium, under careful management, has likewise been employed, either in grain doses given once, or in the fractional part of a grain repeated after a few hours till the desired effect has been produced upon the bowels: and sometimes I have found a mild and efficient action from giving a small dose of elaterium, and following it, in three or four hours, by a dose of castor-oil with three or four drops of laudanum. I have never made trial of the croton: it might possibly act well; but, like all other drastic purgatives, must be given cautiously, on account of the feeble condition to which the mucous membrane of the intestines is often reduced in this disease, and its tendency to assume a state of over-action.

With regard to diuretics, I have generally wished to abstain from all, except digitalis; and yet I have not unfrequently found myself almost forced to their adoption, when other remedies have failed, in the hope of restoring, for a time, the secretion of the kidney, which has been so greatly reduced as to threaten an entire suppression. I look upon this class of remedies, however, in the light of a necessary evil in such cases; and do not feel authorised in recommending their employment. Very generally, diuretics seem obviously uncalled for, the secretion being already in excess.

Much as may be effected by active remedies in the acute state of the disease; in its chronic and advanced stages, particularly when any change may be supposed to have slowly taken place in the structure of the kidneys, our hopes must rest upon such remedies as produce a more gradual effect, and whose action is therefore not so obvious, and perhaps not so certain, but frequently, I have no hesitation in saying, most salutary. These remedies must vary according to a variety of circumstances, and must be persevered in for almost an indefinite length of time. Amongst these may be mentioned, small doses of carbonate of soda; uva ursi, in its different preparations; small doses of antimonial remedies; and all these, combined with some anodyne, as the conium, or, still better, the compound ipecacuanha powder. The very careful exhibition of the vinum ferri, the tinct. ferri muriatis, or some other chalybeate preparation, has sometimes appeared to do good for a time, but has not generally been admissible for a continuance. Strict attention to the state of the bowels is also indispensable; and becomes the more necessary, because their function is very apt to be interfered with, and their action to become irregular. Sometimes there is a strong tendency to diarrhoea, and occasionally quite an opposite condition exists: some mild combination, calculated to act gently and regularly, should be used; but the exact form will depend very much on our experience in the individual case, as the object should be to produce an action as nearly like the natural as possible, all unnecessary irritation being avoided.

A great deal still further depends upon diet. Where milk is grateful, if it sits easily on the stomach, and is freely digested, I believe it to be one of the best aliments which can be taken. Light animal food frequently agrees: tea should be avoided: all badly cooked vegetables, and all fruits, will often be found injurious. The great rule is, to avoid every thing which obviously deranges the stomach; and to take tonic and nutritive, but not stimulating food. The less of wine and spirituous liquors is taken, the better.

On the subject of clothing I have already said all that is necessary: let flannel be worn constantly, and every precaution be habitually adopted which may obviate the effects of whatever is calculated to chill the surface or check the perspiration. With regard to exercise, let it be gentle, but sufficient; and if perspiration be induced, which is sometimes the case, from very slight exercise, the greatest care is necessary. If horse exercise is employed, every thing like hard riding and severe exertion to the loins must be avoided. The exposure of an open carriage for any length of time, if the temperature of the air be low, and more particularly when the circulation has been previously excited by a walk, is injurious, and even dangerous.

I am aware of the difficulty of effectually enjoining all these restrictive rules; and continuing them, even when the patient considers himself so well as to be able to live like those around him. They are, however, necessary, if he wishes to prolong his life: this is the alternative on which he has to decide. The cases which I have given in the commencement of this communication, while they shew the danger, shew likewise, that, with very little attention to precautionary measures, life may be prolonged in this disease for many years: but I have every reason to believe, that none of these cases approach nearly to the length of time during which the reasonable enjoyment of all the comforts of life may be continued, where the circumstances of the patient allow him to adopt, and his resolution enable him to persevere in, the means which his medical adviser may suggest.

TABULAR VIEW OF THE MORBID APPEARANCES IN 100 CASES CONNECTED WITH ALBUMINOUS URINE WITH OBSERVATIONS

By DR. BRIGHT

THE following tabular digest of one hundred cases, in which the mottled and granular kidney has existed, and in most of which the renal affection was a prominent feature of the disease, has been formed almost entirely from cases which have occurred within my own observation: some of them have been under my care during life; but in almost all, I have been present at the examination after death; and the appearances are either such as I have myself noted, or, where I have neglected to do this, the ample records of our Museum manuscripts have furnished me with the necessary details. The first thirty-three of the dissections which I have reduced to a tabular form have already been published in another shape, in my Medical Reports: the remaining sixty-seven are unpublished cases, of most of which it was my intention to have given an account in the present communication; but the press of matter obliges me to defer them to a future number of this work.

I will not assert, that every individual case recorded in the table was ascertained, during life, to have been the subject of albuminous urine. In a very large majority, the condition of the urine had been carefully examined: in some, it was not tested till after death; and in a few, no decided information upon the subject could be obtained: but in no case has there been any ground to doubt the existence of this very frequent symptom. It has not been possible to introduce into the table a more detailed description of the state of disease in the kidney; and the terms 'hard' and 'soft' have generally been adopted, to point out the contracted, and what is presumed to be the more-advanced stage of the degeneration, as compared with the more recent disorganization. There may, however, be some reason

to doubt whether the different states of the organ are not rather evidence of modifications in the diseased action, than correct indication of the duration of the disease. Those who wish to appreciate more exactly the appearance of the kidneys in these cases, will find well-marked examples of what I have styled the 'hard kidney' in the first and third plates of the First Volume of my Medical Reports; and some varied modifications of the soft condition of the kidney, in the second, third, and fourth plates of the same volume.

From the analysis of the following tabular view, many curious facts respecting the derangement of different organs connected with granular kidneys are brought to light; for it is most probable, that a hundred cases of one disease, collected at different times and with no particular object in view, will yield results which will, in the main, be borne out by the comparison of any other equal number of cases of the same disease. The first circumstance which strikes the mind, is the extent and frequency to which the derangement of one organ is connected with the derangement of several others: yet we are not at liberty to assume, that the disease of the kidney has been the primary cause on which the disease of the rest depended. It may be, that some other organ has first suffered, and that the kidneys, together with the rest, have become involved. I confess I am inclined to believe that the kidney is the chief promoter of the other derangements. The only organ, except the kidney, which I think, on taking a review of the history of this disease, might probably act as the primary cause, is the skin; and this is so closely connected in its derangements with the kidney, that the relations of their lesions, as regards cause and effect, become equivocal. It is, however, to be held in mind, that the secretion of the skin is quite as much interrupted, for a time, in many other states of disease, without the albumen making its appearance in the urine; in diabetes, for instance, in jaundice, and in certain stages of various inflammatory and febrile diseases. Moreover, it is not a fact, that in every case, or during the whole course of the disease under consideration, the skin is not perspirable: on the contrary, we often establish, for many

TABULAR VIEW OF THE MORBID APPEARANCES

CASE	Kidney	Pleura	Lung	Pericardium	Heart	Cavity of Abdomen	Peritoneum
1. John King, act. 34, died of pericarditis	hard, granulated	adhesion and effusion	hepatized and oedematous	effusion of fibrin	large and firm, with slight deposit on one semilunar valve	effusion	..
2. Eliz. Beaver, act. 37, died of effusion in chest	soft, large, granulated	effusion	healthy	slight effusion	small and weak	effusion	..
3. Mary Sallaway, act. 25, sunk exhausted	soft, mottled	effusion and adhesion	tuberculated	..	healthy	effusion	..
4. Daniel Peacock, act. 30, died of diarrhoea and erysipelas	soft, large, much white deposit	effusion	healthy	..	healthy, small	..	..
5. H. Thomas, act. 34, died of pleuritis	soft, large, mottled	effusion, with recent fibrin	firm, congested	..	flaccid	..	..
6. Mary Ann Richardson, act. 45, died suddenly	hard, large, granulated	..	pulmonary artery plugged with fibrin	..	..	..	recent inflammation
7. Eliz. Stewart, act. 40	hard, small, granulated, contracted	not seen	not seen	..	healthy	vena portae and splenic vein plugged with fibrin	..
8. W. Bonham, act. 55, died of pulmonary obstruction	hard, small, granulated, contracted	adhesion and effusion	not seen	..	not seen	effusion	..
9. — Smith, act. 35, died of effusion in chest	hard, granulated	effusion	oedematous	..	hypertrophy of left side	..	..
10. M. Castle, act. 39, died of pulmonary obstruction	hard, contracted	adhesion	healthy	effusion	healthy	..	..
11. H. Izod, act. 25, died of pulmonary obstruction	soft, large, white	effusion	bronchitis and oedema	slight effusion	pale and flaccid	effusion	..
12. — Galloway, act. 22, died epileptic with pleuritis	soft, mottled	effusion with recent fibrin	oedematous, a few old healed tubercles	..	healthy	effusion	..
13. T. Drudget, act. 37, died of apoplexy and convulsion	soft, mottled	slight effusion	slight pneumonia and bronchitis	slight effusion	hypertrophy of left ventricle	..	..
14. Leonard Evans, died suddenly from oedema of epiglottis	soft, large, highly congested	very slight effusion	healthy	slight effusion	healthy	..	..
15. W. Roderick, act. 45, died exhausted	soft, mottled	effusion	gorged	healthy	healthy	..	..
16. — Hobson, act. 14, died of pleuritis and pericarditis	soft, granulated	recent adhesion	oedematous	effusion, and thick coating of fibrin	rather large	..	..
17. W. Hunter, act. 47, died epileptic and exhausted	soft, granulated	effusion and adhesion	..	thick coating of fibrin	rather large	effusion	..
18. James Jones, act. 45, died of cerebral irritation	soft, large, mottled slightly	adhesion	a few tubercles	slight effusion	hypertrophy of left ventricle	..	recent and old inflammation
19. Man of Colour, act. 55, died of effusion of blood on brain	hard, small, contracted, scabrous	adhesion	..	..	large, flaccid	effusion of clear serum, with transparent membranes	opaque, and old adhesions
		hardened by old pneumonia, bronchi dilated	..	great hypertrophy of left ventricle	effusion of clear yellow serum	..	..

TABULAR VIEW OF THE MORBID APPEARANCES

135

<i>Liver</i>	<i>Intestines</i>	<i>Stomach</i>	<i>Spleen</i>	<i>Pancreas</i>	<i>Aorta</i>	<i>Brain</i>	<i>Uterus</i>	<i>Bile</i>
healthy	distended with flatus, mesenteric glands large	..	dark coloured	healthy	..	..	..	healthy.
slightly diseased	distended with flatus	..	healthy	healthy	..	..	small	healthy.
very slightly diseased	ileum ulcerated	..	..	..	slight ossification	..	..	thin.
slight granular disease	irritated throughout	..	healthy, but with a casual white deposit	..	healthy	..	..	deficient.
spotted	irritated throughout	healthy	..	..	..	..	..	healthy.
spotted	..	..	healthy	..	..	..	..	green.
spotted	..	..	..	..	..	..	..	healthy.
rather solid	healthy	..	soft	healthy.				
healthy	duodenum vascular	vascular	healthy	healthy.				
spotted.								
healthy	healthy	mucous membrane grey	small.					
very healthy	healthy	healthy	healthy	congested	..	..	..	healthy.
healthy	healthy	healthy	soft	..	healthy	effusion of blood into all the ventricles		
healthy, but gorged	..	..	soft	healthy.				
healthy	irritated and ulcerated	..	fleshy	..	ossified	..	..	diluted bile.
diseased	mucous membrane congested	..	very large	large and firm	..	..	..	light green.
spotted	..	..	..	..	large	effusion into ventricles	..	turbid orange colour.
granulated	contracted	mucous membrane granulated and scabrous	very large and firm	..	healthy	arachnoid opaque.		
slightly granulated	..	..	small	..	dilated, atheromatous deposit	great effusion of blood on surface, and marks of old similar disease.		

TABULAR VIEW OF THE MORBID APPEARANCES

CASE	Kidney	Pleura	Lung	Pericardium	Heart	Cavity of Abdomen	Peritoneum
20. Jas. Kennedy, aet. 63, died of softening of brain	slightly granulated	..	..	..	mitral valve ossified	..	..
21. John Ruggles, aet. 46, died of bronchitis, with oedema	slightly granulated	old adhesions	partial hepatization, bronchitis	..	large, right ventricle thick	..	..
22. Thos. Tweed, aet. 52, died with symptoms of cerebral congestion	soft, extensive white deposit	old adhesions	gorged, and partially hepatized bronchitis	..	large and flaccid	..	..
23. Margaret Field, aet. 40, died with anasarca comatose	hard, rough, lobulated	adhesions	bronchitis, and lobular pneumonia	effusion of serum	firm, large	abundant effusion of serum	..
24. Jane George, aet. 36, died with anasarca	hard, granulated, mottled	strong adhesions	..	general cellular adhesion	great hypertrophy of right side, disease of all the valves, particularly the tricuspid	effusion	opaque, and thickened
25. ——— Jessy, died apoplectic	hard, granulated	..	healthy, with slight hepatization	..	large valves healthy	..	..
26. ———, died apoplectic	hard, pale, granulated	general adhesion	healthy	..	left side rather too firm	..	..
27. ———, aet. 73, died comatose	hard, granulated	inflamed	emphysema, partial inflammation	..	left side firm, mitral valve and tricuspid diseased	..	..
28. John Baldrey, aet. 61, died apoplectic	hard, granulated	slight adhesions	emphysema, apex indurated	healthy	large, particularly left ventricle	..	..
29. Robt. Wardess, aet. 50, died apoplectic	soft, white	inflamed	oedema, and emphysema	..	coronary vessels ossified	..	..
30. Wm. Saunders, aet. 47, died apoplectic	hard, small, contracted	inflamed	compressed	fibrin, and viscid serum	hypertrophy of left ventricle	..	..
31. Martha Russell, aet. 40, died of hydrothorax	hard, small, granulated	great effusion	healthy	..	hypertrophy of left ventricle, disease of mitral valve	..	..
32. M——— L———, aet. 40, died epileptic	hard, granulated, contracted	..	..	..	..	..	..
33. S. Barnet, aet. 28, died epileptic	hard, scabrous	..	..	..	..	adhesions	..
34. Mr. R———, aet. 33, epileptic, and died comatose	soft, granulated	effusion	emphysema, and oedema	slight effusion	flabby, but hypertrophic in left ventricle; one aortal valve diseased	..	thickened

<i>Liver</i>	<i>Intestines</i>	<i>Stomach</i>	<i>Spleen</i>	<i>Pancreas</i>	<i>Aorta</i>	<i>Brain</i>	<i>Uterus</i>	<i>Bile</i>
hard, granulated	..	..	small, rather hard	..	..	softened externally, vessels diseased.		
gorged with blood	congested	..	..	..	..	vascular and mottled.		
..	..	..	..	..	few opaque spots	brain marbled with congestion, serum beneath the arachnoid, vessels atheromatous.		
somewhat fatty	large intestines, ulcerated throughout	..	healthy	healthy	..	..	some cysts in the ovaries	mucus with bile.
hard, and full of blood	mucous membrane oedematous	thick and granular	..	..	..	much serum beneath arachnoid	enlarged.	
slightly granulated	healthy	slightly contracted	external cartilaginous deposit	healthy	atheromatous	serous effusion, disease of plexus choroides	..	calculi and little bile.
gorged with blood	..	distended with flatus	..	..	..	serous effusion in arachnoid, disease of choroid plexus.		
healthy	contracted	healthy	small and contracted	obstructed	..	serous effusion.		
healthy	healthy	mucous membrane thick and corrugated	cartilaginous deposit externally	healthy	diseased throughout	apoplectic clot, vessels diseased.		
..	..	..	..	..	extensive ossification	apoplectic clot, serous effusion, vessels diseased.		
granulated	..	mucous membrane hard and rough	..	..	..	diseased vessels, old apoplectic clots.		
healthy	..	..	..	..	..	apoplectic clot, vessels diseased.		
..	..	..	..	..	..	calvaria thick and solid.		
healthy	soft	soft	hard	..	..	calvaria thick and solid		
slightly granulated	duodenum granular and abraded; other marks of mucous irritation	healthy	healthy	healthy	..	arachnoid opaque, serous and slight sanguineous effusion	..	good.

CASE	Kidney	Pleura	Lung	Pericardium	Heart	Cavity of Abdomen	Peritoneum
35. Mr. G——, died epileptic	hard, small, granulated	effusion of serum	emphysema	..	large, particularly left ventricle; semilunar valves slightly diseased	..	..
36. Maria Hill, died quite suddenly	soft, large, white	..	healthy, slight oedema	..	hypertrophy general, right auricle distended	..	..
37. Hugh Maclean, died of peritonitis	hard, large, white	healthy	healthy	healthy	large and muscular, valves healthy	inflammatory effusion	inflamed
38. A German, died suddenly	hard, scabrous	effusion, old adhesion	healthy	..	healthy	..	..
39. Mary Thomas, aet. 23	hard, granulated	effusion	healthy compressed	slight effusion	healthy	great effusion, mesenteric oedematous, some glands enlarged	a few old adhesions on the liver
40. ——— Beckwith,	hard, scabrous	..	emphysema, oedema, trachea, unhealthy	..	healthy	healthy	a few old adhesions
41. ———,	hard, scabrous, lobulated	slight effusion	solid, from oedema and congestion	..	hypertrophy of left ventricle, valves healthy	mesenteric glands enlarged	..
42. ———,	hard, scabrous	..	old and recent tubercles	..	light-coloured	..	..
43. ——— Jackson, died in convulsion	hard, contracted, lobulated	effusion, old adhesion	oedema	..	hypertrophy of left ventricle, valves healthy	..	..
44. ——— Preston, died quite suddenly	hard, contracted, scabrous	effusion, and old adhesion	old tubercles	..	hypertrophy of left ventricle, mitral valve ossified	effusion	..
45. ———,	hard, lobulated	effusion	compressed	..	large, semilunar valves diseased	effusion	slight false membrane
46. ———, died with coma, and convulsion	hard, contracted, scabrous	effusion	oedema, emphysema, bronchitis	effusion	hypertrophy of heart, valves healthy	..	..
47. ———, sunk suddenly	hard, contracted, scabrous	effusion, and recent fibrin	..	effusion	hypertrophy of left ventricle, valves healthy	..	..
48. ——— Collins, died suddenly, in a fit of vomiting	hard	effusion	oedema, emphysema, bronchitis	effusion	hypertrophy of left ventricle, slight valvular disease	..	..
49. A. Leonard, aet. 45, died from pulmonary obstruction	hard, contracted, scabrous	effusion, with old and new adhesions	apoplexy and bronchitis	..	hypertrophy of left ventricle, valves healthy	..	old adhesions on liver

<i>Liver</i>	<i>Intestines</i>	<i>Stomach</i>	<i>Spleen</i>	<i>Pancreas</i>	<i>Aorta</i>	<i>Brain</i>	<i>Uterus</i>	<i>Bile</i>
..	..	..	..	..	..	effusion into ventricles, membranes opaque.		
healthy	oedematous	..	..	..	..	slight effusion, brain soft	ovaries large.	
healthy, inflammatory effusion on surface	..	..	..	..	..	slight opacity of arachnoid, with effusion under it and into the ventricles.		
slight disease, hard and mottled	..	ramification of vessels on the mucous membrane	large, solid	..	dilated, and having atheromatous deposits	healthy.		
healthy	healthy	healthy	healthy	healthy	..	..	healthy	healthy
healthy	obstructed from an old adhesion of the omentum	ramification of vessels on the mucous membrane	healthy	..	..	slight effusion under the arachnoid	Fallopian tubes obstructed	healthy.
remarkably healthy	healthy	..	..	..	atheromatous.			
mottled, and containing tubercles	colon and ileum ulcerated	..	healthy.					
rather firm, and light-coloured	healthy	..	large	..	slight atheroma	scull and membranes thick, effusion in membranes and ventricles, plexus and brain exsanguine.		
remarkably healthy	..	mucous membrane granular.						
slight granulation	..	ecchymosis of mucous membrane	healthy	healthy	..	arachnoid opaque, effusion underneath.		
healthy	healthy	healthy	healthy	healthy.				
light-coloured.								
remarkably healthy, but gorged with blood	healthy	healthy	very large	healthy	some opaque patches	fluid effused under arachnoid	..	healthy.
granulated	duodenum ulcerated	pylorus scirrhus, and ulcerated	..	..	some opaque patches.			

TABULAR VIEW OF THE MORBID APPEARANCES

CASE	Kidney	Pleura	Lung	Pericardium	Heart	Cavity of Abdomen	Peritoneum
50. Mary Brooks, died in convulsions	hard, lobular, scabrous	recent slight inflammation	slight apoplexy	..	muscular, with slight trace of mitral disease	..	slightly thickened on the liver
51. ———	soft, white, mottled	slight old adhesion	one or two old tubercles in apex	..	healthy	..	..
52. ———	soft, white, mottled	..	slight apoplexy, and cretaceous deposit	..	healthy	..	..
53. ——— Hewett, aet. 41, died in convulsions	soft, white, mottled	..	healthy	effusion	healthy	effusion	..
54. A. Jackson, aet. 48, died from pulmonary obstruction	soft, mottled	..	oedema, and consolidation	..	gorged	..	..
55. J. Stedman, aet. 33, died comatose	soft, large, flabby, white	..	oedema, emphysema, and bronchitis	..	firm and thick	effusion	..
56. J. Roberts, aet. 28, died from pulmonary obstruction	soft, large, flabby	..	oedema and carnification	general old adhesions	large, mitral and semilunar valves diseased	..	..
57. William Camp, aet. 46, died of peritonitis	large	..	slight bronchitis	..	healthy	great effusion, with flakes of lymph	covered with false membrane
58. William Lovett, aet. 18	soft, large, white	..	..	..	gorged	..	..
59. W. Hart, aet. 28, died of diarrhoea and exhaustion	soft, white, mottled	..	healthy	..	healthy	..	..
60. Maria Tapley, aet. 27, died of effusion in chest	soft, light	great effusion	oedema, emphysema, old gritty tubercles in apex	slight effusion	small, with ecchymosis	inflammatory effusion	inflamed
61. T. Smith, aet. 24, died of peritonitis	soft	old and recent effusion	healthy	..	..	inflammatory effusion	inflamed
62. H. Hill, aet. 8, died exhausted by hip-disease	soft	..	..	..	..	mesenteric glands large	..
63. ———, died of gangrene of lung	soft	empyema	right gangrenous and compressed	..	..	..	..
64. ———	soft, large, white	..	healthy	..	healthy	puriform effusion	acute inflammation
65. ——— Smith, died of peritonitis	soft, yellow, mottled, large	..	..	..	dirty-looking serum, and old adhesion	acute inflammation supervening on old	..
66. W. Burford, died of peritonitis	large, soft	recent and old adhesions and effusion	oedematous	..	..	..	..
67. Dr. Barlow's case, died of phthisis	contracted, mottled, with cysts and obstructed tubuli	old adhesions and effusion	phthisical tubercles	..	..	..	..

TABULAR VIEW OF THE MORBID APPEARANCES

141

<i>Liver</i>	<i>Intestines</i>	<i>Stomach</i>	<i>Spleen</i>	<i>Pancreas</i>	<i>Aorta</i>	<i>Brain</i>	<i>Uterus</i>	<i>Bile</i>
remarkably healthy ..	healthy, but mucous glands in duodenum large	healthy	healthy	healthy	healthy	small exostosis on cranium, effusion under arachnoid	ovary diseased.	
very slight granulation	colon ulcerated	healthy	healthy	healthy	..	..	slight disease	healthy.
large and firm	..	..	..	..	..	..	..	tolerably healthy.
remarkably healthy	healthy	..	small	healthy	healthy	effusion under arachnoid.		
healthy, but gorged with blood	healthy	..	light-coloured.					
healthy, but gorged with blood	colon diseased	..	soft, and light-coloured	healthy	..	effusion.		
..	..	..	..	..	..	remnant of sanguineous effusion.		
much diseased	..	healthy	healthy	hard	..	slight effusion under arachnoid.		
remarkably healthy	vascular	healthy	very large and tuberculated.					
..	mucous membrane scabrous	..	..	..	..	slight effusion into the ventricles.		
soft	ulcer in ileum	mucous membrane vascular	healthy	healthy	..	..	..	light green.
healthy	pulpy.							
healthy								
large and unhealthy	injected	..	..	..	..	..	..	pretty healthy.
fatty	..	..	..	..	..	..	..	mucus tinged with bile.
..	..	..	..	..	..	chronic affection of cranium.		
..	healthy.							
large and granulated	ulcer in small intestines.	..	..	..	..	..	clot of blood in ovary.	

TABULAR VIEW OF THE MORBID APPEARANCES

CASE	Kidney	Pleura	Lung	Pericardium	Heart	Cavity of Abdomen	Peritoneum
68. J. Commerford, act. 50, died with diarrhoea and coma	hard, contracted, granulated	serous effusion	oedematous	serous effusion	general hypertrophy, tricuspid valve diseased	..	..
69. S. Veal, act. 35, died delirious with exhaustion	hard, firm, mottled	old adhesion, and slight effusion	old chronic tubercles	..	firmly contracted, mitral valve slightly ossified	..	old adhesions
70. Fred. Crown, act. 47, died with convulsions	hard, small, granulated	slight adhesion	healthy	slight effusion	great hypertrophy of left ventricle, valves healthy	serum effused	..
71. — Brain, died comatose	hard, granulated	..	oedematous	..	great hypertrophy of left ventricle, valves healthy	..	..
72. —	soft, mottled	healthy	healthy	sanguineous effusion	healthy	..	..
73. —	hard, granulated	great effusion in right side	the right compressed by fluid, the left by heart	thin layer of recent fibrin	general, hypertrophy, valves nearly healthy	effusion	..
74. Jane Webster, act. 53	..	..	a few tubercles, lungs gorged	healthy	hypertrophy of left ventricle, and some thickness of mitral valves	..	..
75. Edw. Morgan, act. 25	soft, large	adhesion, effusion	healthy	slight effusion	healthy	great effusion, no inflammation	..
76. James Prior, act. 52	soft, partly mottled	adhesion, effusion	healthy, but gorged	slight effusion	greatly enlarged, flabby, soft, dilated, left ventricle chiefly	effusion	slightly inflamed
77. Charles Ossery, act. 25	soft, large, mottled	recent adhesion and effusion	compressed	..	small, flaccid	effusion	inflamed, and old false membrane
78. Bridget Cannon,	large, pale	old adhesion, great effusion	partially hardened	..	large	slight effusion	inflamed
79. Thos. Smith, act. 40, died of disease of knee-joint	incipient white degeneration	old adhesion	a few old tubercles nearly well	slight effusion	healthy	..	healthy
80. John Warren, act. 50	hard, small, pale	old adhesion	oedema and emphysema	..	large, left ventricle much thickened, muscle pale, no valvular disease	..	healthy
81. G. Tregg, act. 48, died from pulmonary obstruction	hard	extensive old adhesion	bronchitis, lungs permeable, but solidified	universally adherent	large, valves of left side thickened and bony	pale fluid effusion	partially opaque
82. J. Elliott, act. 67	hard	extensive effusion	compressed	extensive effusion	hypertrophized, slight thickening of valves of left side	..	healthy

TABULAR VIEW OF THE MORBID APPEARANCES

143

Liver	Intestines	Stomach	Spleen	Pancreas	Aorta	Brain	Uterus	Pile
healthy	..	..	..	..	..	serous effusion under arachnoid.		
light yellow, firm, and not fatty	old ulceration in both large and small	..	..	..	..	serous effusion	ovaries with small cysts.	
very healthy	mucous membrane pale, mucous glands large	..	healthy	healthy	..	arachnoid opaque, serous effusion.		
healthy, with slight peritoneal opacity	healthy	..	healthy	healthy.				
very healthy	..	..	very soft.					
congested, and slightly granulated	healthy	..	natural	..	dilated, slightly atheromatous	..	..	thin.
healthy	healthy	mucous membrane discoloured	large and hard	healthy	greatly enlarged	clot in right thalamus.		
healthy	pale	..	large and soft.					
slightly nutmeg	loaded with watery bilious dejections	mucous membrane red	soft	healthy	slight atheroma	soft and flaccid.		
pale, small, indurated	speckled grey	mucous membrane red in patches	large, firm	healthy	..	..	..	healthy.
..	with watery faeces	mucous membrane thickened.						
mottled, granulated	mucous membrane of large, granulated, and ulcerated	..	lacerable	..	..	slight effusion under arachnoid.		
healthy	loaded with watery secretion, speckled grey	pale, but thick and granulated	rather soft	healthy	..	arachnoid opaque, serous effusion, brain flaccid.		
large, and uneven on surface	oedematous, mucous membrane grey	..	small	firm	..	..	..	good.
rather granulated, from irregular congestion	..	..	large	firm	..	..	..	light-coloured.

TABULAR VIEW OF THE MORBID APPEARANCES

CASE	Kidney	Pleura	Lung	Pericardium	Heart	Cavity of Abdomen	Peritoneum
83. Eliz. Watson, aet. 30, <i>died comatose</i>	hard	healthy	crepitant, gorged, oedematous	healthy	natural	..	healthy
84. W. Broom, aet. 17	hard	adherent universally	fleshy oedema, bronchial mucus	..	great hyper- trophy of left side, aortal open- ing slightly narrowed	..	..
85. Mary Taylor, aet. 48	soft	adherent partially	oedematous	..	aortal valves diseased	..	..
86. G. Mortlock, aet. 33, <i>died comatose, with calculus</i>	hard, pale	..	emphysema- tous	..	slight hyper- trophy	..	..
87. W. Lawrence, aet. 43	hard, not contracted	old adhesion on both sides, and effusion	oedematous and com- pressed	natural	small	effusion	..
88. Mary Ann Andrews, aet. 33, <i>sunk ex- hausted with diar- rhoea</i>	soft	effusion of serum	compressed	..	healthy	three pints of serum	..
89. Sarah Boxall, aet. 41	small, con- tracted	..	oedematous	serous effu- sion	dilatation and hypertrophy general	..	..
90. Joseph Viner, aet. 53, <i>died of pericarditis</i>	contracted	pint of serum	slight oedema	effusion of fibrin	large	..	..
91. Samuel Marns, aet. 30	large, firm	slight adhe- sion, with effusion	oedematous	serous effu- sion	hypertrophy, aortal valves thick, and mitral diseased	..	..
92. John Wright, aet. 48, <i>died epileptic with coma</i>	hard	soft adhe- sions	oedematous	adherent	healthy	..	..
93. Edw. Arnott, aet. 43, <i>died comatose</i>	large, hard	serous effu- sion	bronchitis	opaque	hypertrophy, and old adhesions	three pints of clear serum	..
94. Edw. Briggs, aet. 56, <i>died with coma and convulsions</i>	large, firm, calculus in bladder	..	oedematous and apo- plectic	..	hypertrophy and dilata- tion, sub- stance soft	..	..
95. John Jones, aet. 38	large, plump	old adhesion and recent inflamma- tion	bronchitis and con- solidation	..	large and firm	..	..
96. Edw. Callow, aet. 15	small, hard	..	chronic pneumonia	..	hypertrophy	..	..
97. Benj. Fielder, aet. 45	white far advanced	..	..	..	curtain of mi- tral valve thick	..	..
98. Caroline James, aet. 17	large, smooth, white	partial old and recent inflamma- tion of left	..	slight serous effusion	healthy	abundant effusion	..
99. Joseph Dale, aet. 28	large, mottled	effusion, and recent lymph	healthy, slightly compressed	fluid, with lymph	healthy	abundant effusion, with lymph	..
100. J. Somerville, aet. 50	contracted	very slight old adhe- sion, and effusion	oedematous	..	healthy and large	..	healthy

TABULAR VIEW OF THE MORBID APPEARANCES

145

<i>Liver</i>	<i>Intestines</i>	<i>Stomach</i>	<i>Spleen</i>	<i>Pancreas</i>	<i>Aorta</i>	<i>Brain</i>	<i>Uterus</i>	<i>Bile</i>
healthy	..	..	..	..	..	injected, arachnoid opaque.	..	viscid dark green.
healthy	oedematous	mucous membrane injected	fleshy	firm	..	membranes opaque, slight serous effusion, brain slightly injected	..	..
rather large	..	..	healthy	healthy	large, and much diseased	serous effusion, arachnoid slightly opaque	diseased, scirrhus.	..
healthy	..	..	fleshy	healthy	..	effusion in pia mater and ventricles.	..	..
healthy	..	..	healthy	..	..	not examined	..	fluid bile.
healthy	oedematous, old ulcer in caecum	..	large and fleshy	small	..	..	..	watery, gall-stones.
rather granulated and large	..	..	healthy	healthy	..	dura mater a little thickened, slight effusion in pia mater, brain marbled, small cells	..	watery, gall-stones.
congested	mucous membrane coarse and grey	..	healthy	..	..	..	..	healthy.
small, and rounded	..	large	healthy	healthy	healthy	much effusion in the membranes, arachnoid clouded	..	dark, and viscid.
slightly granulated	..	..	soft	..	atheromatous deposit	membranes opaque, and effusion	..	dark, and viscid.
congested	..	..	large	healthy	..	..	..	ropy.
dark colour	..	..	large	..	slight atheromatous deposit	soft and vascular, some effusion of serum	..	dark, and viscid.
large, and granulated	..	..	granulated.	..	..	..	..	..
firm, and granulated.	..	mucous membrane granular	..	..	..	fluid in pia mater.	..	..
fatty	large intestines, follicles enlarged	healthy	soft, and mottled	..	..	..	very small	thin, saffron coloured.
granulated, with structural disease	..	..	large, and soft	large, and firm.	..	..	..	..
slightly indurated	healthy	..	healthy	healthy	arch dilated	much chronic disease of membranes and substance.	..	..

months, the secretion of the skin, while the urine remains albuminous; as we occasionally succeed in doing in cases of diabetes, without essentially changing the character of the urine. In almost every case, the first impression which brings on the anasarca is suppression of perspiration; but it is almost as constantly the fact, that the kidneys have undergone some previous irritation, and very likely that the albuminous urine, in most cases, existed previously to the occurrence of those symptoms by which it has been recognised, more particularly previously to the anasarca.

The changes effected in the blood by the long continuance of this disease are quite sufficient to account for most extensive derangement. The extraordinary manner in which the blood becomes impoverished and robbed every successive day of a portion of its most nutritive parts must, of itself, be considered a most efficient cause of predisposition to disease; and the fact, established now by a great accumulation of evidence, and supported by the names of Prout and Bostock, of Christison, Gregory, Babington, and others, that the chemical qualities of the blood are so far changed, that urea is to be detected in that fluid, or, at all events, certain constituents scarcely distinguishable from it, is still further to be viewed as a source of disease springing immediately out of the defective action of the kidney. On the other hand, it cannot be denied, that if the function of the skin is suddenly interrupted, derangements are likely to arise in various organs; and as, in many instances, the kidney most evidently receives a very injurious impression from the suppression of the perspiration; so other organs may be in turn affected through the same medium. I do not therefore by any means assert, that all the lesions which the foregoing table details, flow as a consequence from the kidney alone; but that they are such derangements as generally co-exist with this peculiar disease of that organ.

The principal lesions display themselves in the circulating and respiratory systems, and in the serous membranes. The heart and the lungs, the pleura, the arachnoid and the peritoneum, have, in a large majority of cases, shewn marks of disease;

while the liver; the spleen, the pancreas, and even the intestines, have frequently been, to all appearance, in a state of health, and have comparatively seldom given proof, by their structure, of any peculiarly diseased action. Of all the membranes, the pleura has decidedly been most often diseased; but that disease has, in forty cases, consisted of old adhesion; which, though it might have been connected with the first attack of renal disease, or might have taken place at some later period, in connexion with that affection, may probably only mark the liability of the individual to be affected by atmospheric changes, and may have been the result of some casual inflammatory attack. At all events, the twenty-six cases in which the pleura was apparently healthy, and in three of which its freedom from disease is distinctly stated, prove, that however general a limited inflammatory action of the pleura may have been, it forms no essential part of the disease. That the pleura is, however, liable to inflammatory action, in a large proportion of these cases, may be inferred from the sixteen instances of recent inflammation; while the serous effusion, which has occurred in forty-one cases, has been connected with that general loss of balance between the actions of the exhalents and the absorbents which is obvious in every part of the system.

The same tendency to disease which is manifest in the pleura, shews itself, though in a less degree, in other serous membranes. In the pericardium, we have found six instances of old adhesion, eight of recent inflammation, and twenty-three of serous accumulation; and in the peritoneum, ten instances of old adhesion, twelve or thirteen of well-marked, recent, and often most acute inflammatory action; and twenty-three of the effusion of clear serum, in three of which a false membrane had been formed by chronic action: and again, looking to the arachnoid, we find that membrane rendered opaque, probably by a more or less severe inflammatory action, in thirteen cases; while well-marked serous accumulation had taken place beneath it in twenty-nine cases, and had partially distended the ventricles in six.

The deviations from health in the heart are well worthy of observation: they have been so frequent, as to shew a most

important and intimate connection with the disease of which we are treating; while at the same time there have been twenty-seven cases in which no disease could be detected; and six others, which, from not having been noted, lead to the belief that no important deviation from the normal state existed. The obvious structural changes in the heart have consisted chiefly of hypertrophy with or without valvular disease: and what is most striking, out of fifty-two cases of hypertrophy, no valvular disease whatsoever could be detected in thirty-four: but in eleven of these thirty-four, more or less disease existed in the coats of the aorta; still, however, leaving twenty-two without any probable organic cause for the marked hypertrophy generally affecting the left ventricle. This naturally leads us to look for some less local cause, for the unusual efforts to which the heart has been impelled: and the two most ready solutions appear to be, either that the altered quality of the blood affords irregular and unwonted stimulus to the organ immediately; or, that it so affects the minute and capillary circulation, as to render greater action necessary to force the blood through the distant sub-divisions of the vascular system. The valves chiefly affected have been the semilunar valves of the aorta and the mitral; and in three cases, the tricuspid has been somewhat deranged. In three cases, likewise, the disease of the valves has been unattended by any hypertrophy of the heart.

It is observable, that the hypertrophy of the heart seems, in some degree, to have kept pace with the advance of disease in the kidneys; for in by far the majority of cases, where the muscular power of the heart was increased, the hardness and contraction of the kidney bespoke the probability of a long continuance of the disease. Six cases are noted, in which the heart was soft and flaccid, and four in which it was unusually small; and in most of these, though not in all, the disease of the kidney had not proceeded to the state of contraction and hardness.

The principal diseases of the lungs have been oedema and bronchitis, frequently attended by an emphysematous condi-

tion of certain portions. Oedema has occurred in thirty-one cases; and it is very commonly the immediate cause of dissolution, or of the increased distress towards the approaching termination of the chronic form of the disease. In six cases, recent, and in five old, traces of pneumonia were found; while the embarrassment to the circulation, caused by these various diseases of the heart and lungs, had occasionally given rise to the effusion of blood into the tissue of the lungs, in the form which is now known by the term of pulmonic apoplexy. The instances in which phthisis, or any form of scrofulous or tuberculous disease, has been connected with the renal affection, have been decidedly rare; so that in only four cases has recent phthisis developed itself: and what is somewhat remarkable, in more than double that number the disease seems to have made a certain inroad upon the upper lobes of the lungs, and then to have sunk into a state of quiescence, or entirely subsided: from which we should perhaps be inclined to infer, that so far from these diseases being associated, the condition of the body in this form of renal disease is unfavourable to the existence of phthisis, or that it is certainly not peculiarly apt to occur in tuberculous constitutions.

With regard to the liver and the abdominal viscera generally, as compared with the heart and lungs, a very great immunity from structural disease is to be observed; a fact the more remarkable, as the habits of intemperance with which the renal disease is so frequently connected are those which might be expected to act very directly on the liver and digestive organs: indeed, to this day, the impression is so strong, as to the injurious effects of stimulants being manifested chiefly on the liver, that the majority of practitioners no sooner see the bloated countenance of anasarca connected with the history of intemperance, than they proceed to consider in what way the depraved action of the liver is to be corrected, and its morbid changes retarded. Looking to the tables before us, a very different conclusion forces itself upon our mind, as to the condition of the liver in general anasarca, and in that state of cachexia which often attends upon intemperate habits. We

here find, in thirty-one cases, the liver distinctly stated to be healthy; and in nine other cases, so free from all suspicion of deranged action, as to be pointed out as remarkable specimens of the healthy organ; thus making forty in the hundred free from disease. In thirty-two cases, any deviation from the natural appearance was exceedingly slight; and was, in a large proportion of them, nothing more than that mottled state which is derived from the irregular distribution of blood throughout the texture—a condition very frequently observed, where the circulation through the chest is obstructed. The instances of confirmed diseased structure did not amount to above eighteen. There seemed to be no marked connexion between the condition of the kidney and of the liver; for nearly one half of those cases which were stated to be remarkably healthy were coupled with the hard and probably most-advanced form of the disease, while the other half occurred in cases apparently less advanced; and the more severe cases of hepatic derangement accompanied every variety of the disease in the kidney. The only two instances of fatty degeneration in the liver were in cases where the kidney was soft, smooth, and white; but in another, where the liver was somewhat fatty, the kidney was hard, rough, and lobulated.

The stomach seems, in many cases, to have suffered from the excessive use of stimulants. In eighteen cases, the effects of irritation on the mucous membrane has been recorded: and as this is an organ which is more likely to pass unnoticed than the liver and some others, it is probable that this number would have been increased if its condition had been more constantly or accurately examined and noted.

The spleen and the pancreas have very generally been mentioned as healthy.

The intestines have, in several cases, though not very generally, shewn marked signs of disease. In about nineteen, the small intestines have been irritated in some portions of their courses—in a few of these, ulceration has taken place; and in seven cases the colon or caecum has been diseased; but several of these have occurred in conjunction with tubercles in the

lungs, and have therefore been scarcely ascribable to the peculiar circumstances of this disease.

The diseases in the substance of the brain itself have chiefly consisted of that unequal distribution of blood which is apt to produce a mottled appearance when the medullary substance is exposed in slices, and which is frequently attendant on convulsive or apoplectic seizures. In some cases, the brain has been exsanguine; and in a few, the results of such lesions as the rupture of vessels may induce, have been observed.

The foregoing table likewise affords an instructive average of the immediate causes of death in this disease. I have been able to trace the circumstances connected with the conclusion of life in seventy cases; and find, that no less than thirty out of these seventy have died of well-marked symptoms of cerebral derangements, noted under the titles of 'apoplexy,' 'coma,' 'convulsion,' and 'epilepsy.' Eight others have died suddenly. In eight cases, the obstructed condition of the lungs has been the immediate cause of death; and in three, the effusion into the chest has hastened the dissolution. Next to head affections, the most prevalent diseases have been inflammatory attacks in the serous membranes; amongst which are five well-marked cases of peritonitis, three of pericarditis, one or two of pleuritis. Diarrhoea and other exhausting diseases have carried off several; and in every case, except two or three, the death appears to have been the result, not of casual disease, but of such events as may be said strictly to belong to the condition of the kidney of which we have been treating.

One other point suggests itself, as capable of some illustration from the foregoing table—the period of life in which most have fallen a sacrifice to this disease, and the probable degree to which it shortens life. In seventy-four cases, the age has been recorded; and of these, four only have survived beyond their sixtieth year; thirteen have passed their fiftieth year; but few of them have lived to fifty-five: twenty-one have died between forty and fifty; sixteen have passed thirty years; and nineteen have died before they had arrived at their thirtieth year: and if we take those who have died in their forty-fifth year and below

that age, we find that the large proportion of fifty out of seventy-four have sunk before the meridian of life. The youngest, whose age is given, is only eight; and there is one advanced to seventy-three: shewing, therefore, that neither youth nor age is exempt from this disease, but that it has cut off the greater part of its victims before the middle period has been attained.

ON THE FUNCTIONS OF THE ABDOMEN, AND SOME OF THE DIAGNOSTIC MARKS OF ITS DISEASE

ANOTHER very extensive source of information in disease is to be found in the various qualities of the urinary secretion; and the organs on which that secretion ultimately depends are properly included within our present investigation.

This secretion is influenced by the general actions of the body, as well as by causes acting locally upon the kidneys, ureters, and bladder, so that, as a source of diagnosis, the indications derived from the urine go far beyond what belongs to the state of the organs employed in its immediate secretion. Thus we find a most constant and powerful reciprocal action between the brain and nervous system, and the kidneys; between the digestive organs and the kidneys, and between them and the skin; while in some most striking diseases, as in diabetes, it still remains a matter of doubt on what the morbid secretion of the kidney depends; and not improbably the nervous system will be found more closely concerned in this disease than has usually been suspected.

I do not intend to enter into a detailed account of all the indications of disease derived from the urinary secretion—a subject upon which we possess a work from the pen of Dr. Prout, than which one more concise, more accurate, or more philosophic in its character, scarcely exists on any other subject connected with our profession; but still I trust I may be forgiven if, passing over much of this interesting field of inquiry, I enlarge a little upon one favourite topic,—the indications of disease derived from the albuminous condition of the urine; for I am fully convinced that however great may be the difficulties which present themselves in explaining the dependence of different symptoms, and tracing the links by which they are united, it is a fact that much important disease arises in connexion with those derangements of the kidneys which lead to the admixture of albumen with the urine—a connexion which had not till very lately been the least suspected; and that while

it has been the habit of practitioners to read in every sallow or leucophlegmatic countenance an indication of some derangement of the liver, the spleen, or perhaps the uterus, the real cause of the symptoms has often been overlooked; and so completely has even the eye of the anatomist been led astray, that the most confirmed organic changes have passed altogether undetected; and, till within the last five or six years, there are scarcely three recorded instances of a disease which, now that it has been pointed out, fails not to shew itself within the course of every month amongst the casualties of almost every large hospital in the British dominions.

But to come more directly to our subject. In the natural and healthy condition of the urine little or no albumen is to be detected. Many saline ingredients there are, and a large quantity of that peculiar animal matter called urea. The specific gravity of this complex fluid in the healthy state ranges from 1.010 to 1.015 or 1.020, varying in this respect a good deal, according to the time of day when it is passed, and the quantity secreted. Under various circumstances, the secretion becomes remarkably altered in its properties, and amongst these morbid changes, one of the most frequent is the presence of an appreciable quantity of albumen. The existence of this substance may be ascertained by various processes, and it is well not to be contented with one of them alone, as there are several sources of fallacy. One of the most ready means of detecting the albumen, and which is very frequently sufficient, is the application of heat, by taking a small quantity of the urine in a spoon, and holding it over the flame of a lamp or candle. In healthy urine no change follows from this exposure to heat; but if albumen be present, you perceive before the fluid reaches the boiling point, that it becomes opaque, sometimes presenting a milky appearance at the edge of the spoon, which extends inwards till it meets in the centre, and then breaks into a white curd. At other times the whole becomes uniformly but slightly opaque, and shortly a multiplicity of bran-like flocculi pervade the whole fluid. When the former of these appearances presents itself before the urine reaches the boiling point, I believe it will

generally be found to arise from the presence of albumen; but when the bran-like flocculi are formed, and particularly if it be necessary to continue the boiling, the indication is less certain. for it occasionally happens that where the urea is unusually abundant, a decomposition takes place by the application of heat, and ammonia is formed, which precipitates the phosphates in a form which it is almost impossible to distinguish by the eye from some albuminous precipitates: such, at least, is an explanation of this phenomenon, which has been given me by my friend Mr. Rees, and appears very probable; at all events, the fact of such a deposit taking place when other tests of albumen fail to shew its presence, must point out the necessity of not trusting implicitly to the effects of heat.

The next test, which is easily applied, is the nitric acid, a few drops of which readily throw down the albumen in the form of a precipitate when it exists in urine; but here, likewise, a deceptive precipitate is sometimes formed from the presence of the lithates, or the lithic acid.

On these, and several other points connected with this extensive and interesting subject, I have lately had great assistance from the intelligent and zealous co-operation of three of my young friends and pupils, Mr. Barlow, Mr. Tweedie, and Mr. Rees. These gentlemen have found, from experiments made upon the urine of two hundred and ninety-six patients, taken promiscuously, in Guy's Hospital, that forty-four, that is, fifteen per cent. were coagulated by heat; that thirty-seven, or twelve and a half per cent., gave precipitates with nitric acid; and twenty-six, or eight and four-fifths per cent., gave precipitates with both.

Eighteen cases, then, gave precipitates with heat, but none with nitric acid, which precipitates were readily re-dissolved by the addition of the nitric acid. These were, therefore, so many cases which could not have been albuminous, and would have deceived had the single test of heat been trusted: they were cases in which the phosphates were precipitated by ammonia generated during the decomposition of the urea. Eleven cases gave precipitates with nitric acid, though none by the applica-

tion of heat; and in these cases heat always re-dissolved the precipitate, and an additional quantity of nitric acid sometimes did the same. These were cases in which the turbidity arose from the presence of the lithates or lithic acid. From this statement it is quite obvious that we ought not to place dependence on either of these tests singly; but when employed together, they are, I believe, to be trusted; and wherever a decided precipitate occurs from heat which is not re-dissolved by dilute nitric acid, we may fairly infer the presence of albumen. Oxy-muriate of mercury is, indeed, a very nice test of the presence of albumen; but it very frequently throws down precipitates from urine, which may easily be mistaken; and the acetic acid, with the ferro-prussiate of potash, which is one of the most delicate and least exceptionable tests, is not quite so easy of application as either heat or nitric acid. These, therefore, upon the whole, when taken together, appear to me the most applicable tests in the greater number of cases.

We are told that many circumstances acting on the constitution, and even slight errors in diet, will often suffice to produce the albuminous condition of the urine, and probably this may be the case, though the observations which I have just stated, on the fallability of our tests, when they are not brought to support each other, render it possible that many of the instances in which this state of urine has appeared to arise from such trivial causes, have been deceptive; but where the albumen is proved to exist, however slight the tendency to this condition may be, I own I always look upon it with anxiety, and the confirmed derangement I always view with dread.

It is believed by some late observers that, provided the specific gravity of the urine be not notably diminished, we have much less reason to dread the result; and this is probably in many cases the fact, because the urine, though it become turbid, does not actually contain albumen, but some other ingredient, which adds to its specific gravity. It was remarked by my two friends, Mr. Barlow and Mr. Tweedie, in the extensive investigation to which I have been referring, 'that with regard to the specific gravity, it was so variable not only in different patients,

but in the same patient at different times, that they found it very difficult to draw any satisfactory conclusions from it. It was found to vary from 1.005 to 1.029. The urine of the lowest specific gravity was albuminous, but several specimens of albuminous urine had specific gravities above the average. That passed early in the morning was generally from 1.020 to 1.025; and that in the middle of the day about 1.015. Those specimens which afforded the phosphatic precipitate upon the application of heat, had invariably high specific gravities.' In connexion with this subject, it is worthy of notice, that when the urine of a patient was found to be truly albuminous, urine obtained from the same patient, within a few days, was so likewise; whereas this constancy was not found with regard to patients whose urine gave the phosphatic precipitate. It appears by no means improbable, that some of those cases in which apparent coagulability has existed, and the specific gravity has been higher than usual, have not really been cases of albuminous urine, but that the precipitates thrown down were derived either from the phosphates or the lithates.

In proportion as the disease continues, or is confirmed, the urine loses those properties which it derives from the presence of urea; but what is still more remarkable, and what seems in some way to account for the general derangement and suffering of the constitution, is the fact that the urea now becomes demonstrable in the circulating mass; the blood becomes impregnated with that substance, or at least the elements of which it is formed are so abundant or so arranged in the blood, that the urea is generated in the chemical processes used for its detection: so that in the case of a young woman who was two or three years under my observation, with albuminous urine, Dr. Benjamin Babington found no less than fifteen parts in a thousand parts of the serum of the blood to be chiefly urea, though somewhat impregnated with other substances. Now whether the urea, being separated by the kidney, is thrown back upon the system, or is retained in the blood till, in itself or in its elements, it becomes discoverable in that fluid, it is plain that what appears to be the great office of the kidney—the

depuration of the blood—does not take place; and we must ever bear in mind that there is no emunctory of the body more indispensable in its action than the kidney: for while even the liver may be most extensively destroyed by disease, and while its ducts may be perfectly obstructed for weeks before the consequences are fatal, it is but seldom (and then only under some very peculiar forms of disease, as cholera) that the patient can survive even a few days the suppression of the urinary secretion.

When the kidney has for some length of time been affected with that morbid condition which is marked by the secretion of albuminous urine, and death has taken place, we usually find certain organic changes, very marked and very generally affecting the substance of the kidney, but varying in some degree in different individuals. The healthy kidney allows its tunic to be stripped off with a tolerable degree of facility, and then presents a perfectly smooth and shining surface, of a general red colour, with an indistinct but regular marking, not very unlike the surface of the liver, derived from the fine secreting structure; and when an incision is made through the kidney, its whole interior presents a light-red colour, little differing from the outside. If death take place shortly after the deranged secretion has been set up, there will probably be little or no morbid appearance, or there will be sanguineous congestion, more or less marked; but after it has continued long, a quantity of opaque white matter will be discoverable, mingled with the natural texture; and on cutting the kidney open, this white deposit gives an unnaturally light colour to the kidney. Sometimes the kidney is large and soft, still pretty smooth upon the surface; at other times raised into projections, and much variegated and mottled, still soft and large. But there is another form which the kidney assumes, which either arises from another modification of the action or shews a more advanced stage of the same disease. The kidney is small and contracted; the whole surface is rough, almost scabrous; the texture is of a semi-cartilaginous firmness, and the tubular portion is drawn towards the surface of the organ. Such are some of the chief modifications of the diseased structure presented by the kidney,

in connexion with that diagnostic test which we are now considering.

One of the most frequent circumstances which calls our attention to this condition of the urine, is the existence of anasarca, which is a common attendant upon the acute attack of the disease; and though it is possible that in many cases the coagulable condition of the urine may have existed previously unobserved, and have been but the predisposing cause to the attack of anasarca, yet, judging from the circumstance that the anasarca which follows scarlatina, the subjects of which are often young persons of apparently unbroken constitution, is frequently of this character, and is almost always accompanied by an obvious derangement of the kidneys, attended by more or less tendency to hæmaturia, I am inclined to suppose that the anasarca is an immediate consequence of the derangement of the kidney. Thus, then, the common history of such cases of anasarca will be found as follows. An intemperate course of life, or some such cause, has predisposed the kidney to suffer. The patient has, in this state, been exposed to vicissitudes of temperature; the irritable kidney has immediately sympathised with the skin, and morbid action has been induced in that organ; the balance of absorption has been destroyed, and serous accumulations have taken place. In scarlatina the skin has derived peculiar susceptibility from the previous exanthematous eruption, and the sympathy between the skin and the kidney is a well-admitted fact. If the kidney have previously been healthy, and if the patient be seen early, and antiphlogistic remedies actively employed, the morbid action subsides; the urine ceases to be coagulable, the anasarca disappears, and the patient is perfectly restored, without any organic lesion of the kidney. If, on the contrary, the kidney have previously been greatly deranged, or the severity of the present attack have been great, or the application of remedies tardy, the acuteness of the attack may be moderated—the anasarca may disappear—but the urine may remain coagulable; leaving the patient subject to relapses of anasarca, and otherwise in a condition very little prepared to withstand disease. That anasarca is by no means

a necessary concomitant of albuminous urine, is proved by the fact that, of the twenty-six cases which were found by my young friends, in their examination of 296 patients, to be coagulable both by heat and nitric acid, and were fairly considered to be albuminous, fifteen had no symptoms of anasarca; and the same investigation shews, were it necessary to shew the fact, that anasarca is not necessarily accompanied by albuminous urine—for three, at least, of the cases they examined, had anasarca without the symptom of which we speak.

From several cases which have come under my observation, I think it probable, that even after severe attacks of this renal disease, and when it has gone on to the disorganization of the kidney, the morbid action may cease, and the organ return to its natural function in a great degree; or at least its action may be so far changed that no albumen is secreted: so that this circumstance may cease to afford the requisite information, though the morbid change remains. In cases of this kind it is necessary to examine the urine often, for although it may cease to be albuminous for a day or two, as the result of medicine or other causes, yet will it probably, upon some slight exacerbation, resume its former qualities; and if it does not, there are other indications to which we may direct our observations, and which will render it probable that the disease is masked or suppressed for a time, rather than overcome. The general leucophlegmatic aspect—the tendency to anasarca swellings in the face and ankles—the occasional hæmaturia—the pain referred to the kidney—the frequent headache,—are all symptoms which occur when the kidney is left in a state of disorganization.

I have not only had many instances within my own observation, of the cessation of the secretion of albumen for a short time under the use of remedies, when there has been reason to suppose the organic disease to be confirmed, but I have had two or three very striking cases communicated to me by my friends. In April 1830, Dr. George Burrows brought me a kidney in the most confirmed state of granulation, so completely pervaded with deposit as to have lost all the structure of the cortical portion, and to have put on a marked scabrous charac-

ter externally. This was taken from a patient who had been in St. Bartholomew's Hospital for a fortnight only, with confirmed anasarca; and in addition to the disease of the kidney, the heart was greatly enlarged and otherwise diseased. In this case, during the whole fortnight which preceded death, the urine had been very scanty, and perfectly limpid—neither acid nor alkaline, and had shewn no tendency to coagulate by heat. Within these few months Dr. Watson afforded me an opportunity of seeing the kidneys of a patient dying anasarcaous in the Middlesex Hospital, which I should not hesitate to pronounce well-marked specimens of the organic change produced by that disease, which is so often accompanied by the secretion of albuminous urine; but this state of the urine did not exist during the time he was under Dr. Watson's observation, and the action of the kidney was so far annihilated, that it was only by gin and stimulating diuretics that a scanty secretion was obtained: in that case, likewise, the heart was much enlarged, without any sufficient cause being discovered.

It is the occasional occurrence of facts like these which naturally excites a doubt in the mind as to the accuracy of the deductions which have been drawn; but although these facts may diminish the value of the albuminous state of the urine, as affording a perfectly unerring source of diagnosis, when observations are made on the secretion embracing only a short period, and more particularly that short period which precedes the fatal termination, they do not shake my confidence in the persuasion, that a great deal of general derangement of the system, and a large class of dropsies, depend on diseased action in the kidney, which diseased action betrays itself particularly in its early stages, but likewise from time to time in all its stages, by the coagulable quality of the urine, and leaves the kidney not unfrequently quite disorganized. I have now witnessed so great a number of cases, in which no other disease could be traced after death but the disorganization of the kidney, to which we might look as the probable source of anasarca, and in so large a proportion of such cases I have found the urine coagulable, that my conviction is complete as to the existence of some

decided connexion between the three facts—anasarca, coagulable urine, and diseased function going on to diseased structure of the kidney. How these facts are connected, or what necessary dependence the one may have upon the other, it is indeed difficult to point out; and some might suppose that we are rather perverting the order of events when we speak of the condition of the kidney as causing the anasarca; whereas, is it not possible that the cold or other morbid cause, acting on the system, produces in some other way the anasarca, and then, the absorbents still acting, the anasarca fluid passes off by the kidneys? To this I would only say, the solution does not appear impossible; but when I know that the same coagulable state of urine which exists during the presence of the anasarca—when it is possible that the albumen is thus supplied to the kidneys, or that the unnatural fluid supplied produces the morbid secretion—often exists when no anasarca has shewn itself, and very often continues for months and years after the anasarca has subsided, I do not feel inclined readily to assent to this solution of the facts; and besides, how would this explanation account for the disappearance of the urea from the fluid secreted by the kidneys?

There are some other curious coincidences which often arise in the progress of these cases, amongst which is the very frequent occurrence of affections of the heart, under a variety of forms; but in several instances the affection has been hypertrophy and dilatation of the left ventricle, attended sometimes by less valvular disease than might be expected to account for the derangement of the heart. In the case to which I have just referred from Dr. Watson this condition of the heart shewed itself, and considerable enlargement of the heart was likewise observed by Dr. George Burrows.

In many of the cases of this disease we find the liver deviating from its natural appearance; sometimes, indeed, it is decidedly diseased, for the existence of the disease of which I am speaking by no means precludes the possibility of other visceral derangements; on the contrary, the very habits which pave the way for the disease of the kidneys tend greatly to derange the liver

in particular. But the most frequent variety in the aspect of the liver which I have observed in these cases, has been that spotted, mottled appearance, which arises from a very slight alteration of colour in the acini, and a degree of sanguineous congestion in the interstitial substance, thus producing a stronger contrast in the colours of these structures than is natural. These slight indications of derangement are, however, comparatively rare, and much more frequently have I found the most perfect specimens of healthy liver in patients with coagulable urine, even where this symptom has been accompanied by anasarca; so that I am convinced the derangement of the liver is but a casual, and not a necessary coincidence.

By a comparison of 48 cases, I find that in 18 the liver was perfectly healthy, and in many of them in a most unusual degree free from the slightest trace of disease; and in 5 more cases, the state of the liver has not been stated; probably, therefore, it was not diseased: nor does this immunity seem to have any reference to the soft or the scabrous condition of the kidney; for, of the 18 cases of healthy liver, 9 were soft, and 9 hard. Amongst the remaining cases, 7 were healthy, except as regarded a slight injection of the substance intervening between the acini, of which 4 were connected with soft, and 3 with hard kidneys. In 10 cases, the liver was slightly granulated; in 1 it was fatty, connected with the soft state of kidney; and in 6 cases only, besides this 1, was the structure of the liver very manifestly diseased; and in 4 of these cases the kidneys were hard, in 2 soft.

In many cases we find evident marks of old or of recent inflammatory affection of the serous membranes; these, however, we frequently find altogether absent. The fact is, as I believe, that during the time the urinary secretion is so unhealthy, a very unusual tendency to inflammatory action exists, and in no part does it show itself more frequently than in the serous membranes. Thus, in 31 out of 48 cases, a notably morbid quantity of serum was effused into the cavities of the chest; while in 15 cases, adhesions more or less extensive existed between the lungs and the pleura costalis, or other marks of decided inflammatory

action were to be traced. In 15 cases, effusion had taken place into the abdomen; and in 6 cases evident marks were found, either of recent or old peritoneal inflammation and adhesion. The effusion into the chest has been more frequent, in the proportion of 18 to 13 in the more advanced cases, when the kidneys have had their structure most completely destroyed, than in those which we presume to be less advanced, and where the kidneys retain their softness and pliability.

The head is likewise very liable to suffer under this affection, for seldom do we find this disease without a frequent complaint of headache, and sometimes of giddiness; and in a great many instances coma and apoplectic symptoms supervene, which, on examination, sometimes prove to have been connected with the effusion of blood, and sometimes of serum. In a small proportion only of the forty-eight cases of which I have the records, was the head examined; yet from amongst them I find eight in which more or less effusion and thickening of the membranes of the brain was observed. Not unfrequently no such obvious cause of the symptoms can be discovered, even when examination is most carefully conducted; in which cases it is not improbable that the altered and deteriorated nature of the blood is one of the causes of the symptoms. In cases of great urinary difficulty, symptoms of this kind are not uncommon, and there is reason to believe that the urea in the blood may be the cause of them. A very interesting case lately occurred at Guy's Hospital, under the care of Mr. Morgan, in which a patient, after being long affected with severe disease in the urinary passages, secreted very little urine, and fell into a state of complete coma. As he lay in his bed, with his countenance pallid and bloated, he had all the appearance of a man dying under serous apoplexy; yet when he died, there was no overwhelming accumulation of serum, but Mr. Rees found from two or three drachms which were collected a result which led him to conclude that urea was present; and Dr. Prout, who was so kind as to examine, at my request, the crystalline matter thus obtained, thought, as far as he could judge from the very small quantity I gave him, that it consisted of nitrate of urea. I do

not know whether the urine passed by this patient was albuminous, but both the aspect of the man and the appearance of the kidneys rendered it very probable.

In reference to surgical disease, I conceive that the albuminous quality of the urine is a consideration of much importance. The healing process is decidedly less active; and under some severe operations, the powers of the system are much less adequate to bear the immediate shock, or withstand the irritation, attendant upon the subsequent progress of repair. It has occurred to me to know that in two or three instances where the operation of lithotomy has unexpectedly terminated fatally, the granulated condition of the kidney has been discovered; and it is very necessary that we should distinguish between these peculiar forms of degeneration and deposit in the kidney, and the condition which the organ acquires in persons disposed to tubercular disease, or those in whom great irritation of the kidney is induced by the formation and presence of calculous matter, in both which cases the tendency is to suppuration, and not to induration and contraction.

It cannot be disputed that the proof which we derive from pathological investigation of the frequent co-existence of undoubted marks of pleuritic, and even sometimes of pulmonary inflammation, with coagulable urine and the diseased kidney, affords a rational ground for argument in favour of the supposition that the affection of the kidney is but secondary. We have, however, no evidence whatsoever, derived from symptoms, in the commencement of a very great majority of these cases that any thing like thoracic inflammation exists; while, on the other hand, we know that inflammation of all the serous membranes, shewing itself by its own well-marked symptoms, is very apt to come on in the advanced periods of this complaint; besides which, we are not to suppose that in a constitution in which anasarca has been long established, every effusion into the cavities is an unequivocal indication of inflammatory action in the part in which it is effused.

With regard to the affection of the heart to which I have referred, I have occasionally been able to trace the gradual

approach and increase of the hypertrophy coming on many months after the albuminous condition of the urine has been established; and it is not improbable that the various evidences of cerebral disturbance which follow in the train of the chronic derangement of the kidney, though in part depending on the urea circulating in the blood, may in some cases be owing to the disease first induced on the central organ of circulation; thus affording another curious illustration of the connexion and the dependence which exist amongst the different functions of the body.

Having said so much upon this particular form of the urinary secretion, it may be thought wrong that I should pass over others scarcely less important; some of which point out the existence and subsidence of febrile action—some of which accompany or even precede the other symptoms of jaundice; some of which demonstrate the prevalence of certain morbid diatheses disturbing the whole frame, and frequently leading, as one of their many evil consequences, to the formation of calculi of various characters and composition. Other states of the urinary secretion I might with propriety dilate upon, as marking the existence of inflammation, of ulceration, of abrasion, or of malignant disease in the kidney itself; or I might claim your attention to those changes which the urine undergoes as it passes through the bladder; its natural properties heightened by being retained, its alkaline parts increased, or the mucus of the bladder copiously mingled with the secretion of the kidney. But although, on a favourite subject, I may have spoken too much at length, I will not longer detain you on the points of diagnosis connected with the urine; only reminding you, that in the case of the kidney, as in that of the intestines, but in a much less degree, the appearance of the secretion may be changed by the character of the ingesta, or the nature of the remedies exhibited; some of which are very speedily recognized in the urine.

APPENDIX

HISTOLOGICAL SECTIONS FROM THE KIDNEYS OF THREE CASES OF 'BRIGHT'S DISEASE' ORIGINALLY DESCRIBED BY DR. BRIGHT

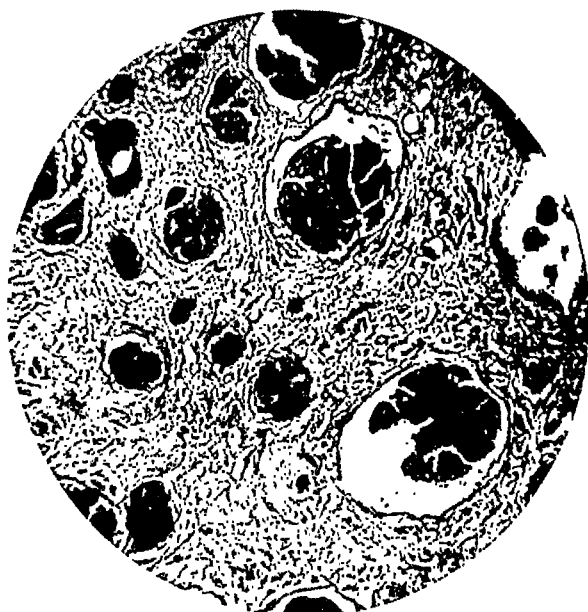
By A. ARNOLD OSMAN, D.S.C., F.R.C.P.

From the Nephritis Clinic, Guy's Hospital, S.E.

Reprinted with emendations from 'Studies in Bright's Disease, No. vii', Guy's Hospital Reports, 1933—LXXXIII, 185.

THOUGH there are many specimens of Dr. Bright's in the Gordon Museum at Guy's Hospital, there are only three kidneys from the original series of cases studied by him in reaching his conclusions on the disease which has since been universally known as 'Bright's disease'. Up to the present time these specimens have never been examined microscopically. According to Hale-White, Bright in 1842 was occupied with his pupil George Robinson in studying the microscopical appearances of diseased kidneys, but so far as is known their results were never published. Robinson did in this year publish a book on granular kidney, but does not refer to the microscopical work in detail, and does not give any plates or diagrams. Through the courtesy of Mr. Davies-Colley, Curator of the Gordon Museum, permission was obtained for small portions of these three kidneys to be removed for microscopical examination. The specimens, which are of course over one hundred years old, were preserved in spirit until the War, when they were transferred to formalin as a precaution against air attacks. They had been originally injected with red lead and, according to Bright's account, 'fine size'. The red lead is still very obvious to the naked eye in the cut tissue and, as will be seen from the micro-photographs, obscures the histological appearances considerably. Great difficulty was experienced in staining the sections in two of the specimens, as the tissues are badly preserved and the cells, and particularly the nuclei, do not take up the stains. All kinds of stains were tried and various experiments undertaken with the

object of improving if possible the staining but without success. One specimen only (No. 1605) shows almost perfect preservation, and the detail and staining is as good in parts as in that of a recent preparation. Obviously a different fixative was used in this instance. It so happens that in this particular specimen one half of the kidney has not been injected with red lead, whilst the other half has. The staining, however, is equally good in both the injected and uninjected halves.



CASE I

Museum Specimen No. 1606

As the specimens are described here chiefly for their historical interest, it has been considered better to use micro-photographs rather than freehand drawings.

Museum Specimen No. 1606. Bright's clinical notes and autopsy findings will be found on p. 12.

In view of the history of this case it was decided to stain for amyloid disease. The iodine-sulphuric acid reaction was strongly positive, and the section stained with methyl violet shows a most perfect example of amyloid disease. It is interesting to note that amyloid kidney was first described by Rokitansky in 1842, and amyloid disease as a clinical entity by Samuel Wilks



RADIOGRAM OF KIDNEY OF MARY S. (*see p. 12*)

AMYLOID DISEASE OF THE KIDNEY

Museum Specimen No. 1606 (*see Appendix, p. 168*)

in 1856. The iodine reaction was discovered by Meekel in 1853. In this connexion it may be recalled that Bright resigned from the Staff at Guy's in 1843 and died in 1858.

The bulk of the renal parenchyma is badly disintegrated, though here and there small islands of tubules are better preserved. The cell outlines and nuclei, however, are not evident. The glomeruli are everywhere conspicuous and the tufts are heavily impregnated with amyloid, shown black in the photograph. The vessels do not seem to be sclerosed or thickened. The general fibrous appearance shown in the photograph is chiefly due to the disappearance of the parenchymatous tissue and not to true replacement fibrosis. The case is clearly one of renal amyloidosis secondary to the pulmonary tuberculosis.

The next case is not described in detail by Bright in any of his writings, but is referred to by him in the table on p. 142. Case No 75; Museum Specimen No. 1605. The following (unsigned) account of the autopsy is taken from the *Museum Inspection Book*, vol. iv, p. 114.

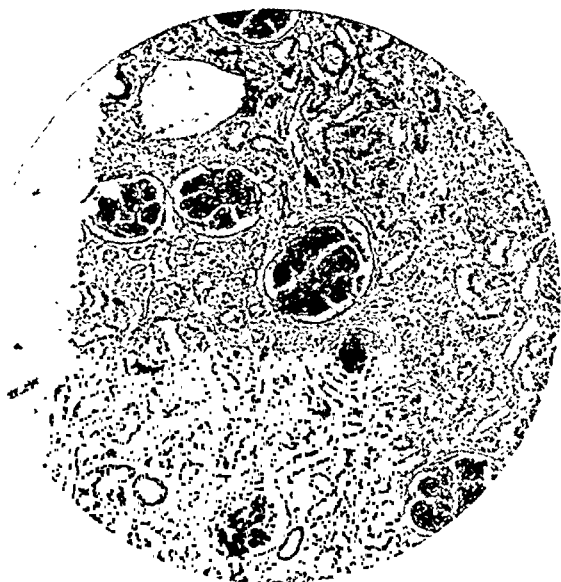
(Museum Specimen 1605)

'1827. 22. 9. Examination of the body of Edward M., admitted 12 September. A patient of Dr. Cholmeley's in Job's ward. He was a stout made sailor, apparently about 25 years of age. He had been returned between three and four months from the Mediterranean. He had been much exposed to wet near the Straights of Gibraltar and had been ill ever since. His most striking symptom was general anasarca. His countenance was pale, with very little lividity.

'He could at times assume a posture nearly or quite horizontal but this was at other times much more difficult. When quiet his dyspnoea was by no means striking. The general oedema rendered percussion unsatisfactory. The pulse was feeble, and remarkably slow at times, but little exceeding 40 per minute, with an occasional intermission at long intervals. The impulse as examined by the stethoscope was but weak, its sound was not perverted or remarkably loud, but it was thought to be more audible than usual at points remote from the region of the heart. He had had some little pain in the loins, but it appeared to have been transient and to have created but little attention, several attempts were made to obtain his water for examination but without success. He took diuretics as squills and Sp. Aether Nitrat and on two occasions Elaterium was given him. In the afternoon of the 20th he appeared to be suffering greatly and had considerable vomiting, but in the evening he appeared to be much easier. He died on the following morning.

'His body, but especially the belly was much distended and there was

considerable lividity of the head and face. The head was not opened. The pleurae presented adhesions of long standing and some slight traces of more recent inflammation. There was more than a pint of colourless, but rather turbid fluid on both sides, it was unmixed with flakes of coagulated lymph, and though the substance of the lungs had evidently been somewhat compressed by the fluid, it was still sufficiently penetrated by air to evince that the effusion had not been of very long standing. The heart was free from disease. The pericardium exhibited no appearance of inflammation, but contained some though not a large quantity of serum. The peritoneal cavity contained some quarts



CASE II

Museum Specimen No. 1605

or perhaps gallons of serous fluid, very much resembling that in the thorax, slightly turbid, but free from colour or flakes of coagulable lymph. There was no evidence of peritoneal inflammation. The mucous membrane of the alimentary canal was in general pale, but at intervals of greater or less distance there were patches of diffused lightish red. They were chiefly present in the small intestines. The liver deviated but very little, if at all from the healthy state. The spleen was rather large and soft. The kidneys were large, plump, smooth, and of a very pale or nearly white colour from abundant deposit of the soft diffused form.'

Sections of the kidney show that the tissues are extraordinarily well preserved considering their age. The microscopical appearances are typical of those nowadays described as subacute nephritis with crescent formation and early hyalinization of



**RADIOGRAM OF KIDNEY OF EDWARD M.
SUBACUTE GLOMERULONEPHRITIS**

Museum Specimen No. 1605 (*see* Appendix, p. 169)

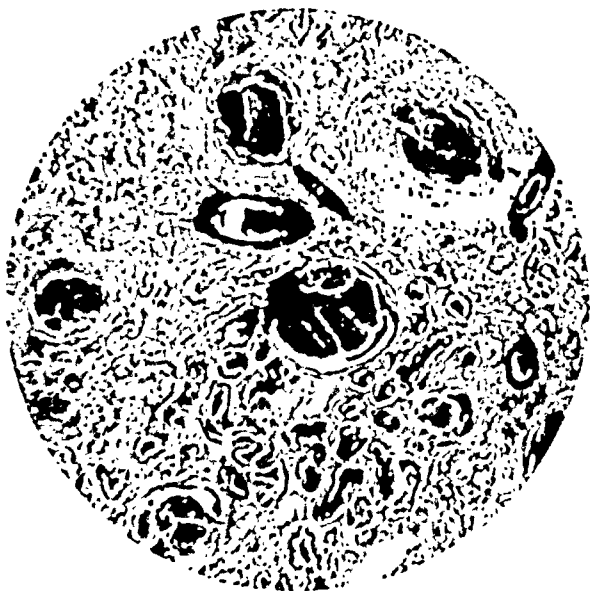


RADIOGRAM OF KIDNEY OF MARY B.
CHRONIC GLOMERULONEPHRITIS

Museum Specimen No. 4611 (*see* Appendix, p. 374)

some glomeruli. The vessels do not seem to be unduly thickened. Throughout the interstitium are scattered areas of round cell infiltration. The tubules are more or less disintegrated, and it is not possible to express an opinion as to their pathological state.

The photograph scarcely does justice to the section, but one partially hyaline glomerulus is seen in the centre of the picture,



CASE III

Museum Specimen No. 1611

and above and to its left is another glomerulus with a portion of a crescent which has become detached from the capsule.

In his paper on *Cases and Observations Illustrative of Renal Disease Accompanied with the Secretion of Albuminous Urine* (1836), Bright refers to the third case (see p. 111).

The age of the patient, the long history of repeated attacks of anasarca, and the high blood urea indicate that she was suffering from chronic glomerular nephritis with secondary contraction of the kidneys—one variety of granular kidney. The heart at autopsy was described as being 'of moderate size' and the kidneys as 'small and rather granular on their surface'. Inspection of the original specimen shows that the only kidney preserved is

little if at all below the normal size and the granularity of the surface, though present, is certainly not striking. Microscopically the chief change consists in fibrosis and hyalinization of most of the glomeruli, many of the tufts being surrounded by dense rings of fibrous tissue. There is also much excess of fibrous tissue replacing collapsed and atrophied tubules throughout the section. Vascular sclerosis is not a prominent feature of the section and it is doubtful if it is present at all.

This is clearly a case of chronic glomerular nephritis with secondary contraction of the kidney. The one unusual feature is the absence of marked vascular sclerosis and, one may infer, any considerable hypertrophy of the heart.

Radiograms of these three kidneys (see Pls. VI, VII, and VIII) were taken by Dr. Wm. Lindsay Locke, Senior Radiologist to Guy's Hospital.

I am greatly indebted to Mr. R. Davis-Colley for permission to take portions of the original specimens in the Gordon Museum for microscopical examination. My thanks are also due to Prof. C. S. Gibson and Dr. E. Mathews for their efforts to render the tissues more suitable for investigation and to Mr. G. Greeves, Chief Laboratory Assistant in the Department of Pathology at Guy's Hospital.

